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Clinical Observations
ON
JEJUNO-COLIC FISTULA FOLLOWING GASTRO-JEJUNOSTOMY.

BY
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THAT the operation of gastro-jejunostomy is occasionally followed by the formation of a jejunal ulcer is a well established fact. The frequency with which this serious after-result occurs is unknown, but it has been estimated at from 1 to 2 per cent. of operations. The ulcer forms at the anastomosis, from which it commonly spreads in the jejunum, sometimes in the stomach, occasionally in both; or it arises primarily in the jejunum near the anastomosis, but sometimes at a greater or lesser distance from it in the efferent limb. A little over 10 per cent. of jejunal ulcers become adherent to the transverse colon and perforate into it, thus establishing a jejuno-colic fistula, or much less commonly a gastro-colic or a gastro-jejuno-colic fistula. Four such cases have recently come under our observation, and a reference to the literature shows that there are already twenty-seven cases on record. Most of the cases have naturally been published as isolated observations, but a paper or two have been written on the analysis of such cases, which clearly show that the condition possesses a definite and characteristic, though variable, clinical picture, which is worthy of closer study, particularly as this complication of gastro-jejunostomy has hitherto attracted very little attention in England.

HISTORICAL.

The first case on record was a *gastro*-colic fistula, which was operated upon by Czerny[1] and published in 1903. An ulcer on the anterior wall of the stomach originating at the edge of the gastro-jejunostomy opening had perforated into the transverse colon, which had become adherent to the base of the ulcer. In 1905 von Herczel[2] published the first operation on a *jejuno*-colic fistula formed by the perforation of a jejunal ulcer situated in the efferent limb opposite the anastomosis into the transverse colon. In the following year Kaufmann[3] described a case of his, which was operated on by Gérster and in which there were two fistulae, one between the stomach and colon, and a second between the jejunum and colon. Gosset's[4] first case was published in the same year, and in 1909 Lion and Moreau[5] wrote a paper on this subject based on the above-mentioned cases and two additional ones, which were operated on by Nélaton and Gosset (second case) respectively. They appear to have overlooked a case reported by Port and Reitzenstein[6] in 1907, in which the fistula connected the colon with the stomach and jejunum.

In a paper on jejunal ulcer Paterson,[7] in 1909, quotes four of the above cases, and in addition a *post-mortem* examination by Cackovic, in which an unexpected jejuno-colic fistula was found opposite the anastomosis. In the following year Van Roojen[8] also published a communication on jejunal ulcer, and found that of the cases he had collected nine had perforated into the colon. He quoted four cases which have not been mentioned above, namely, those of Van Stockum, Koch, Wickershausen, and von Herczel (second case). In 1913 Polya[9] described a case and summarized the knowledge obtained up to date on this subject, and quoted the additional cases of Pinner, Sesin, Spassokukozki, Gosset (third case), and two of von Eiselsberg. Since this year a further eight cases have been published. In 1915 Hamann[10] described the case of a medical man in whom a jejuno-colic fistula was operated on four years after the gastro-enterostomy was performed. Barling,[11] in 1917, published the case of a man in whom a jejuno-colic fistula was diagnosed three years after gastro-enterostomy. The patient died five months later of general peritonitis due to the perforation of a second jejunal ulcer. At the New York Surgical Society on April 10th, 1918, Downes[12] read a paper on the case of a man who first had the appendix removed without benefit, and then a gastro-enterostomy performed five months later. The following month a second operation was done for closure of the stoma. Eleven months later an anastomotic ulcer was excised and gastro-enterostomy again done. During the following year he had three haemorrhages from the bowel, and was treated medically. Two years later symptoms of fistula appeared, and after two months the fistula was closed and the gastro-enterostomy opening enlarged. The patient was reported well three months later. At the discussion which followed the reading of this paper Erdmann related the case of a male patient of his on whom he had successfully operated for jejuno-colic fistula a year previously.

Carnot, Froussard, and De Martel[13] in 1918 gave a very full and interesting account of their observations on a case which showed definite symptoms of fistula two years after gastro-enterostomy. The parts were resected and end-to-end anastomosis of the large and small intestine with closure of the gastro-enterostomy stoma performed. Clairmont[14] in 1918 showed three cases at the Medical Society of Vienna on whom he had done extensive resections for jejuno-colic fistula. The details of these operations are given in a later paper.[15]

Two further papers, by Mathiew[16] and Urrutia[17] respectively, have been published on this subject, but we have been unable to obtain copies of them in London. Thus 27 cases at least have been recorded, and the addition of our 4 cases brings up the total to 31. No doubt many unpublished cases exist.[18] We shall now give reports of these 4 cases, which were primarily patients of one of us (C. B.). The first three were operated on by the other of us (W. T.), and the fourth case died after a laparotomy by another surgeon had failed to find the cause of the faecal vomiting.

CASE I.—*Perforated Duodenal Ulcer: Gastro-jejunostomy (1915): later Vomiting and Diarrhoea: Operation (1919) for Jejuno-colic Fistula: Temporary Caecostomy: Recovery.*

T. G., male, aged 37, railway attendant, was admitted to University College Hospital on March 14th, 1919.

History.

The symptoms began in 1901 with pain in the right part of the epigastrium under the costal margin, two hours after meals and relieved by food. Sometimes it was a "doubling up" pain, at other times milder. There was fullness in the epigastrium, and eructations of wind and acid fluid; vomiting was rare. These symptoms recurred at intervals in attacks which lasted a few months. In the intervals the patient was quite well. In 1915 the ulcer, which was duodenal, perforated. He was operated on at University College Hospital; the opening was stitched up and posterior gastro-jejunostomy performed at the same time. The patient recovered, but almost at once began to suffer from griping pain in the lower part of the abdomen, which had continued intermittently ever since, though for the last twelve months it had been less marked, and had recently disappeared. The bowels were regular.

Six months before admission the old pain under the right ribs reappeared. It came on, as before, two hours after meals, and was relieved by food, but was not so severe and griping, although otherwise of the same character. There were also fullness and eructations of wind. Two months before admission the patient began to notice that very offensive gas and fluid were eructated, and a fortnight later he suddenly vomited over a pint of light-coloured very offensive material. A second attack of vomiting occurred two weeks before admission, and was preceded by a sensation of constriction in the upper part of the abdomen. The material was of the same nature as before, but smaller in amount. A third attack occurred the day before admission. The vomit was light coloured and offensive as before, but less than a pint in amount. There was no vomiting in the intervals between these three attacks, but offensive gas and fluid were eructated.

Diarrhoea commenced just before the first attack of vomiting two months ago, the bowels having been quite normal previously. The diarrhoea having once started continued more or less incessantly, occurring any time in the day or night. The stools were light-coloured and contained a little mucus but no blood. They were very similar to the vomited material. During the last two months pain was also felt in the left hypochondrium and down the left side. The pain in the epigastrium was dull and aching and radiated downwards over the whole abdomen. It was more or less constant, coming on at any time, and being relieved by food for a time and also by the vomiting. Patient had a severe attack of intestinal colic two weeks before admission. Wasting began with the first attack of vomiting, and during the two months he lost 10 lb. The appetite was moderate and sleep poor. Patient stated that he felt better when the bowels were confined.

Condition on Admission.

The patient was pale and thin, weighing 8 st. 5 lb. 12 oz. He vomited on two occasions, bringing up about 6 oz. of light-brown coloured liquid material of faecal odour and not containing any solid masses. His symptoms were as described above.

Diarrhoea did not occur on every day, an enema simplex being necessary on two occasions. The stool was light-brown and soupy, did not contain any amount of solid material, and was in appearance like the vomit. It contained 85 per cent. water. The total fats were 18.8 grams per cent. dry weight, the fatty acids and neutral fats being each 9.4 per cent. There were some undigested muscle fibres, but no evidence of either trypsin or starch digesting ferment. There was no lienteric diarrhoea.

A test meal showed a total acidity of 0.1095 gram per cent. There was no free HCl, no lactic acid; the protein HCl was 0.1095 gram per cent. Albumoses were present, and the digested power of the fluid was 52 per cent.

Physical examination of the abdomen showed a median epigastric scar. There was a tender spot under the right costal margin, but no marked rigidity of the recti muscles, and no cutaneous hyperaesthesia. The stomach was distended with gas, the resulting swelling was confined to the epigastrium, but no peristalsis was seen and no distension of the colon could be made out. The urine was normal; the temperature rose to 100° F. on one occasion, but was otherwise normal.

X-ray Examination.—The lowest point of the stomach was situated 2½ in. below the umbilicus; it emptied rapidly, and in two hours there was a large shadow in the caecum and lower part of the small intestine. A doubtful shadow was seen in the descending colon, but it was possibly in the small intestine. In four hours the caecum was empty and the transverse colon filled. A considerable amount collected in the small intestine, which probably ran through the fistula. The stomach did not fill up. The examination was thus inconclusive. A faecal fistula was diagnosed without further investigation.

Operation (W. T.).

An incision was made through the left rectus. There were many firm adhesions in the region of the anastomosis and involving the stomach, transverse colon, and spleen. When these had been separated the anterior aspect of the jejunum at the anastomosis was found to be firmly united to the posterior aspect of the transverse colon over an area about ¾ in. in diameter. There was obviously a communication between the two organs at this point. The colon and jejunum were now dissected apart, the fistula being thereby opened. It was found possible to separate the two organs freely without encroaching on either unduly. The resulting openings in the colon and jejunum were stitched up, the gastro-jejunostomy being left intact. A temporary caecostomy opening was made through a short incision in the right iliac fossa.

The operation was difficult on account of the adhesions. Although these were separated with great care, a laceration of the spleen was produced, which bled profusely until it was closed by sutures.

Subsequent Course.

The case ran a normal course and the patient left the hospital in three weeks. For the first ten days he passed a motion each day, which was light coloured as before the operation; then the motions became darker and were practically normal when the patient left the hospital; in fact he required an occasional aperient. There was no pain or other symptom. He was seen again in February, 1920, and stated that he had been very well until two months previously. He then developed pain one hour after meals in the left hypochondrium, with a feeling of distension. There had been no vomiting nor diarrhoea. He now and then experienced the old ulcer pain. His weight was 9 st. 12 lb.

CASE II.—*Gastro-jejunostomy (January, 1918): Constriction of Jejunum and Second Operation (ten days later): Later Diarrhoea and Intestinal Pains: Two Operations for Jejuno-colic Fistula (November, 1918, and March, 1919, with Temporary Caecostomy): Recovery.*

L. M., male, aged 42, was first seen in October, 1918.

History.

He began to suffer from "indigestion" at the age of 18 years, and definite duodenal pain commenced five years later. He had recurrent attacks of pain at varying intervals, and was treated by many medical men from this time till January, 1918, when he was operated upon and a posterior gastro-jejunostomy performed. "The stomach was dilated and hypertrophied, and the gall bladder was adherent to a large scarred ulcer extending over the whole of the anterior surface of the duodenum. In addition there had at some time been a small ulcer on its posterior surface. There was considerable induration of the head of the pancreas. The appendix was also removed and showed traces of old inflammatory trouble." The patient went on well for ten days, and then felt nausea and vomited a considerable quantity of "bile." This recurred a day or two later, and a second operation was therefore performed. "The jejunum at the centre of the anastomosis was constricted by a band of adhesions, which passed from the mesocolon to the mesentery of the jejunum. The band was intimately adherent to the intestine and could not be freed. A longitudinal incision was therefore made through this part, which was then sutured vertically." Three weeks after the operation a sharp pain occurred under the left ribs, more at the back than the front, but this passed off in a few days, and the patient was sent into the country on March 1st, 1918. Towards the end of April he began to have slight pain in the intestines, particularly low down on the right side, otherwise he was fairly well, and had a very good appetite. Early in May the pain increased, and he suffered from diarrhoea constantly. There was no griping pain or sudden call to defaecate, but the patient could pass a liquid and pale stool two or three times a day. As the diarrhoea increased the intestinal pain decreased. About this time he complained of eructations of foul-smelling gas and nausea, but never had any vomiting. On May 12th he suddenly vomited half a large basinful of brown liquid having a bad odour. He thought this was "bile." He was put into a nursing home and had his stomach washed out once or twice, and in a few days the nausea and diarrhoea ceased. After this for about six weeks he was considerably better, but the foul flatulence troubled him, and he had some pain. He used to often wash out his stomach in the early morning by drinking a solution of sodium bicarbonate and making himself vomit; a small amount of dark and bad-smelling fluid came up and pieces of stuff like brown paint; occasionally at night he used to feel as if the stomach had not emptied, and on making himself vomit a pint or more of brown material came up. He increased in weight from 8 st. 13 lb. to 9 st. 5 lb. in August. The abdominal pain now began to increase, and he had very bad nights and was kept awake by pain and diarrhoea. The pain was always worse and came on sooner when he was lying down or sitting in a chair, but in the upright position he was much more free from pain. The diarrhoea was practically continuous, and he began to lose weight. He had a good appetite and ate a liberal diet. The foul flavour was more frequent, and on several occasions he made himself vomit and brought up a large amount of brown bad-smelling material. He only vomited involuntarily once or twice during the whole period. In addition to the acute intestinal pain in the lower part of the abdomen he also described pain and distension in the upper part, but the pain seemed to spread over the whole abdomen. An examination of the faeces in September showed them to be acid in reaction; no bile pigments, blood, or mucus were present. The total fats were 38 per cent. Microscopically large numbers of muscle fibres, fat globules, and bacteria were seen.

Present State.

When he came under observation (October, 1918) he was thin and under his ordinary weight. The pain he complained of was a severe griping in the region of the caecum and transverse colon, with some pain in the left hypochondrium, and also general distension and pain in the whole abdomen. There were occasional eructations of foul gas. The appetite was excellent. Physical examination revealed nothing of importance.

A test meal was administered and the amount withdrawn was only 1 oz., so that the stomach emptied rapidly. It was yellowish in colour but was not foul in smell, and on analysis showed:

Total acidity	0.144 per cent.
Protein HCl	0.108 ,,
Free HCl	0.036 ,,

Subsequently four specimens of vomit were obtained by the patient making himself sick when he felt his stomach distended.

Specimen 1.—A pint or more of thick brown, semi-fluid material of an obvious faecal odour. This was the only occasion on which faecal material was observed.

Specimen 2.—

Total acidity	0.365 per cent.
Protein HCl	0.146 ,,
No free HCl	
Organic acids	0.18 ,,

Bile absent. Stercobilin absent. Starch and fat-splitting ferments present in large amounts. There was a large amount of undigested muscle fibre.

Specimen 3.—Dirty yellowish in colour, containing a fair amount of undigested food and some flakes of mucus, also some small masses of soft completely digested material.

Reaction: Acid to phenolphthalein.	
Total acidity	0.146 per cent.
Acidity due to HCl	0.1095 ,,
Acidity due to organic acids	0.0365 ,,

Stercobilin was isolated from the vomit and gave the typical bands spectroscopically. Indol was obtained by distillation. The vomit contained a fat and a starch-splitting ferment.

Specimen 4.—The vomit separated into three layers, a lower layer and an upper layer of soft yellowish-white pultaceous material, which contained a lot of fat and was quite structureless and completely digested. Extraction gave evidence of stercobilin. Otherwise like result of Specimen 3.

Examination of the faeces showed them to consist of a liquid brownish-white material, with small hard whitish masses. There was no blood or mucus. Microscopically there was no undigested muscle or vegetable fibre. No free undigested starch. The stool contained 80 per cent. water.

Total fats, dry weight	29.72 grams per cent.
Fatty acids and soaps	20.96 ,, ,,
Neutral fats	8.76 ,, ,,

It seemed plain from these results that faeces were intermittently entering the stomach and a jejuno-colic fistula was diagnosed. The stomach emptied itself quite well at times, but the regurgitation into it of faeces and duodenal contents simulated retention of food. It was also clear that the direction of flow was from the colon into the stomach, and not vice versa,

as no undigested food or excess of fat was present in the faeces. In spite of the presence of faeces in the stomach the appetite was unimpaired, the secretion of HCl was what is usually found after a gastro-enterostomy, and there was practically no vomiting. The passage of the colonic contents along the small intestine no doubt was responsible for the diarrhoea.

An x-ray examination of the alimentary canal did not help much. The stomach showed nothing abnormal and emptied through the stoma within two hours, a small quantity passing through the pylorus and duodenum. Five and a half hours after ingestion only a small quantity of the meal was in the lower coils of the ileum, the bulk being in the colon, extending into the ascending part of the organ. The passage through the small intestine was thus abnormally rapid. The whole of the meal had been evacuated after twenty-five hours. An opaque enema flavoured with peppermint was administered. A shadow was seen to distend the descending colon and splenic flexure and to pass along the course of the transverse colon. No gas flavoured with peppermint was eructated.

A faint shadow appeared above the level of the transverse colon, but it was not definite enough to lead one to infer that the enema had passed into the stomach. The *x*-ray examination thus merely demonstrated the rapid emptying of the stomach and the great irritability of the intestine.

First Operation, November 28th, 1918 (W. T.).

There were many adhesions and much distortion of the parts. The fistula was in the same position as that described in the previous case, and was opened up by dissecting the colon away from the jejunum. On account of the very severe inanition of the patient, which did not seem to permit of a prolonged operation, the separation of the colon and jejunum was carried only just far enough to define the openings which had contributed to the fistula and allow of them being sutured. Even so the operation had been a prolonged one through the difficulties presented by adhesions.

For the first week or ten days after the operation there was very pronounced distension of the caecum and ascending colon, which could be felt in the right side of the abdomen as a firm resonant swelling. It was feared at one time that the condition would pass into one of complete obstruction. Gradually, however, it subsided, though for several weeks the caecum remained unduly prominent, and showed visible and palpable peristalsis.

Subsequent Course.

The patient gradually put on weight and by the end of February, 1919, was able to walk out. He passed three or four light and loose motions a day for a time. An examination of a stool on December 31st, 1918. Whitish and containing a lot of viscid mucus. Acid to phenolphthalein, the acidity being 0.073 gram per cent. and due to fatty acids. It contained a fair amount of undigested starch and a very little muscle fibre. *B. coli*, streptococci, and a fair number of anaërobes were present.

Chemical examination:

Water 80 per cent.
Total fats = 14.382 grams per cent. dry weight.
Fatty acids = 14.1, and neutral fats 0 282 per cent.

Stercobilin but no bile present. No digestive ferments present.

This looseness was controlled by chalk and Dover's powder, and finally he passed one light coloured solid motion a day. He had no severe pain as before, but had distension of the gut on and off, giving rise to slight pain. On March 6th, 1919, he vomited up voluntarily a large quantity of material with obvious faecal odour, and it was quite evident that the fistula had become re-established.

Second Operation, March 10th, 1919 (W. T.).

The difficulties of defining the parts involved were greater than at the foregoing operation. Doubtless as the result of the prolonged distension of the caecum and ascending colon the affected organs had been displaced far into the left hypochondriac region and had become fixed there. Full definition was, however, at length obtained, and showed that the fistula had re-established itself apparently by the formation of a small abscess between the line of suture in the jejunum and that in the colon. There was, moreover, in the jejunum, just below the level of the fistula, a stricture which made it plain that a resection of this segment would be necessary, and a stricture in the colon above the fistula which reduced the lumen of the bowel to the size of the little finger. A resection of the colon was therefore also necessary. The segment of the stomach wall containing the gastro-jejunostomy opening was cut out and the stomach wall closed, thus abolishing the anastomosis. A length of jejunum of three or four inches, including the anastomosis, the fistula, and the stricture, was removed, and the bowel joined end to end. A length of colon about five inches, including the fistula and the stricture, was then removed and the gap closed by end-to-end suture. Finally, a temporary caecostomy opening was made.

Subsequent Course.

The caecostomy wound closed in a few days. The patient gradually put on flesh and recovered much more quickly than from the first operation. He had slight distension and discomfort, but no pain or trouble with the bowels. He passed one motion a day, which was formed and gradually became darker in colour. At one time he was a little constipated. When seen last, in December, 1919, he was in a good condition, and had no pain, but only slight distension occasionally.

CASE III.—*Posterior Gastro-enterostomy (December, 1910): Constipation and Intestinal Pain for Five Years: then Diarrhoea and Vomiting: Operation for Jejuno-colic Fistula (July, 1916); Improvement: Recurrence of Symptoms.*

A medical practitioner, aged 49, came under observation on October 25th, 1910.

History.

He had suffered from indigestion for fifteen years, and for the past seven years pain under the right costal margin, occurring two to three hours after a meal and having all the characters of that due to a duodenal ulcer. There was never any bleeding. He had lost flesh. There was a tender point about the tip of the ninth right rib cartilage. The total HCl secreted was 0.29 per cent., and an *x*-ray examination showed that the stomach was dilated, but emptied itself within four hours. He was treated in bed on a graduated diet, and was much better in every way, but he still had occasional pain.

Gastro-enterostomy.

An operation was recommended, and this was performed on December 12th, 1910. A duodenal ulcer was found which had considerably narrowed the duodenum. There were no adhesions to the liver or gall bladder. The stomach was considerably dilated and there was some obliteration of the lesser sac towards the pyloric end of the stomach. Posterior gastro-enterostomy was performed, and the day after the operation the patient vomited a considerable quantity of blood.

After-History.

He recovered and went away to Cornwall, and in February, 1911, wrote that "the least attempt to eat to full satisfaction was always followed by much discomfort." His diet was of the simplest. His pain under the right costal margin had disappeared, and continued absent for four or five years, when it commenced again, but was not so severe or constant as formerly. Soon after the operation the bowels became very constipated, and the patient suffered from colicky pains in the lower part of the abdomen on and off. He would sometimes have three or four attacks in the day, and they often came on two to three hours after food. Till June, 1916, the patient suffered now and then from these pains and constipation, and, in addition, the old pain had also been present for a year or more. At the end of June, 1916, diarrhoea commenced, and one day there was "constant nausea and a horrible taste in the mouth." In the evening of that day he vomited up a large quantity of material with faecal smell and became quite collapsed. The vomiting recurred on several succeeding days, and a faecal fistula was diagnosed.

Operation for Jejuno-colic Fistula.

Operation on the fifteenth day after the vomiting commenced (W. T.). A fistula similar to that present in the cases already described was found. The transverse colon and jejunum were dissected apart, and the resulting openings were closed by suture. This was effected without encroaching on the anastomosis or unduly limiting the lumen of either of the segments of gut.

Subsequent Course.

The faecal vomiting was at once arrested and the patient's general condition, which had been extremely bad at the time of the operation, began to improve forthwith. The patient remained comparatively well till March, 1917, when the old pain returned and melaena occurred. In January, 1918, another attack of the old pain occurred, and amounted to a hunger pain, being relieved by food and alkalis; also a paroxysmal pain, about or below the umbilicus, appeared, and was associated with constipation. These pains continued on and off till May, 1918, when melaena recurred. Since this time he has had several attacks of pain.

CASE IV.—*Posterior Retro-colic Gastro-jejunostomy (June, 1914): Haematemesis followed by Diarrhoea: Faecal Vomiting: Laparotomy (March, 1916): Death.*

G. I., male, aged 33 years, was first seen on May 7th, 1914.

History.

He gave a history of five years' illness. He had a boring pain situated in the abdomen, just above the umbilicus and extending outwards to the sides and round the back; at times it would extend up over the front of the chest and shoulders. It came on one hour after food and woke him in the night. It had become more constant and continuous for the last two years, the only relief being for about four months in the summer. There was no vomiting, unless voluntarily induced, when it relieved the pain. There was never any bleeding. He had a feeling of fullness, but there were no eructations. His appetite was bad; the bowels were regular. He had lost flesh, but was still fairly well nourished. There was no tenderness. The stomach was dilated and a marked splash was obtained, but no visible peristalsis.

A test meal showed:

Total acidity	0.401 per cent.
Free HCl	0 292 "
Protein HCl	0.109 "
Total HCl	0.401 "

An *x*-ray examination confirmed the dilatation of the stomach, and showed that the organ emptied itself in four hours. No irregularity suggesting ulcer was seen.

Posterior Retro-colic Gastro-jejunostomy.

The patient was operated upon in June. The stomach was dilated. A hard mass was situated at the pylorus and fixed posteriorly, the gall bladder being adherent. A posterior retro-colic gastro-jejunostomy was performed.

Symptoms of Jejuno-colic Fistula: Laparotomy; Death.

The patient came under observation again in March, 1916. He had kept well for four months after the operation and then the same pain had started again, and he had vomited blood twice in large quantities. The blood was clotted and coffee-coloured. The pain continued off and on till eight months ago, when it ceased with the onset of diarrhoea. The diarrhoea had continued to the present time. He passed ten or twelve motions a day at the beginning, but at present only three or four. The motions were light in colour. There was a good deal of eructation of wind. The appetite was poor and the patient was wasted. Vomiting had commenced three weeks before; it occurred one hour after food, and was said to consist of a bad-smelling brown liquid. An examination of the vomit showed that it was faecal.

A laparotomy was performed, but the cause of the vomiting was not discovered, and the patient died the next day.

Necropsy.

The transverse colon was adherent to the stomach and the jejunum, the three being matted together in the region of the gastro-jejunostomy stoma. The stoma was 1½ in. in diameter and its edges quite smooth. The fistulous opening between the jejunum and the colon was ¾ in. in diameter and situated about ½ in. from the stoma; it was lower in level than the stoma and a little to the left of it. There was a stricture of the transverse colon situated at the right edge of the fistula, and the colon was a little dilated behind the stricture. The edges of the fistula were quite smooth and healed. This portion of the jejunum was to some extent dilated. (See diagram.)

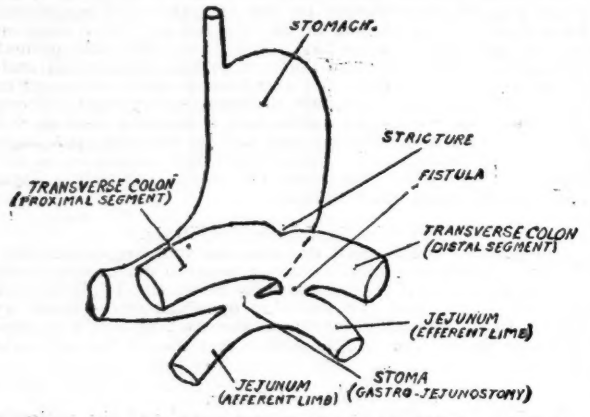

Diagram to illustrate the position of the fistula in Case IV. (The colon is pulled upwards to expose its junction with the jejunum.)

PATHOLOGY.

The condition present in these cases is nearly always a fistulous communication between the jejunum and the transverse colon, the fistula being situated quite close to gastro-jejunostomy stoma and below it. The colon is situated in front and above the jejunum. This was the condition in our four cases. The descriptions of the exact anatomy of the parts is not always quite clear, but it appears to be uncommon for the stomach itself, through a new aperture or through the stoma, to communicate directly with the colon. Both the stomach and the jejunum may, however, open into the colon in the same case. The fistula may in rare cases be situated a few centimetres lower down the efferent limb. Multiple jejunal ulcers may be present sometimes, and these may either bleed or perforate. The edges of the fistula are smooth and healed, and the gastro-enterostomy stoma may be closed. The ulceration has probably been more widespread than appears to be the case, since both closure of the stoma and narrowing of the colon are due to the healing of ulceration. A localized perforation into the anterior abdominal wall may have occurred with the formation of an inflammatory swelling. In most cases, as is evident from a consideration of the anatomy of the parts, the usual result is regurgitation of the contents of the colon into the jejunum, and a minimal passage only of jejunal contents into the colon. This accounts for the absence of undigested food in the stools in most cases. The degree of regurgitation into the jejunum obviously depends also upon the condition of the contents of the colon; the more liquid they are the more likely are they to regurgitate; and, in fact, at this position in the colon the contents are normally considerably inspissated, hence these patients may only suffer from considerable regurgitation when they have diarrhoea. Thus the regurgitation is intermittent, and the patient feels better when he is constipated. When regurgitation occurs into the jejunum the fluid no doubt passes in considerable quantity down the efferent limb into the small intestine, and in smaller amount into the duodenum and through the stoma into the stomach itself; hence vomiting may be absent or occur at rare intervals only, and the functions of the stomach, both with regard to secretion and motion, be comparatively uninterfered with. The vomit may have different compositions at different times. The circulation of the colonic contents through the small intestine no doubt infects it, and is responsible for keeping up the diarrhoea. Foul gas is more commonly eructated, as the escape of this into the jejunum does not depend on the fluidity of the faeces. How often stricture of the colon results is uncertain, but when it does it is the cause of faecal stasis in the caecum and parts proximal to the fistula, with colic in this portion of the bowel. The nutrition of the patient is frequently fairly maintained for a time owing to the absence of vomiting and the retention of appetite, but wasting gradually supervenes, and progresses more or less rapidly. If the stomach directly communicates with the colon—and also sometimes in jejunal fistula—the gastric contents directly pass into the colon, and lienteric diarrhoea supervenes.

SYMPTOMATOLOGY.

The fact that all the recorded cases are of the male sex need cause no surprise when it is remembered that about 80 per cent. of jejunal ulcers occur in men.

The symptoms of fistula may be preceded for a longer or shorter time by those of jejunal ulcer—namely, pain, vomiting, or bleeding, or even those of local peritonitis—but such symptoms may be entirely absent, and the fistula appear to occur in the midst of good health. An unsuspected fistula may be found at an operation undertaken for the relief of recurrent symptoms following gastro-jejunostomy.

The time between the performance of the gastro-jejunostomy and the development of symptoms of fistula varies from a few weeks to nine and a half years.

Onset.

Perhaps the earliest symptom in most cases is diarrhoea, usually with intestinal colic, which may begin quite suddenly, and is gradually followed by wasting and occasional vomiting. In a minority of cases the malady frankly declares itself at once by a sudden and profuse attack of faecal vomiting followed by diarrhoea.

Diarrhoea.

Diarrhoea does not appear to be as a rule continuous but rather occurs in attacks. It is not a watery diarrhoea, neither are very frequent motions passed as a rule. There is no blood nor mucus separate from the motion. The motion is pale and grumous, and undigested food is usually absent: if a few muscle fibres are found this is rather due to the condition of diarrhoea than to direct passage from the stomach. Neither is the fat usually increased, the proportion of split and neutral fat being about normal. Now and then lienteric diarrhoea is observed and a high percentage of fat. In the intervals formed motions are passed, and at such times the patient appears better in all respects.

Vomiting.

Although vomiting may be one of the earliest symptoms, and may regularly occur with the diarrhoea, it may be absent or only occasional, or simply induced voluntarily to procure relief. Such cases are very liable to be overlooked, inasmuch as the vomited matter may not be available for inspection, and, if it is, it may not be faeculent at the time. The vomited matter may be quite similar to that passed by the bowel and have a typical faecal odour, but at other times the vomit simply has a sour smell, and contains bile and pancreatic ferments. In such cases the vomit should be examined for stercobilin and indol due to admixture with small amounts of faecal material.

Gas.

Eructation of foul-smelling gas appears to be an early and fairly constant symptom, but it would be a mistake to suppose that large quantities of gas are present in the stomach as in some cases of gastro-colic fistula; such is not the case.

Pain.

Pain of intestinal origin is a symptom of the disease. It is more or less general in distribution, and due to colic of both small and large intestines, but pain below the umbilicus due to colic in the colon is more especially seen, and particularly on the right side. It is probable that in such cases there is more or less narrowing of the transverse colon. Two of our cases had a great deal of pain in the left hypochondrium. The pain may be relieved when diarrhoea appears.

Appetite.

The appetite is often lost, but it is remarkable that sometimes it is quite good and even increased. In one of our cases the patient after vomiting would become quite hungry and eat a good meal. Wasting is a constant symptom, and the patient tends to go slowly downhill.

Physical Examination.

Nothing characteristic of the disease is revealed by physical examination of the abdomen. There may be some distension, particularly on the right side. Peristalsis of the proximal portion of the colon may be seen. In one case an inflammatory swelling occurred, due to a local perforation of the jejunal ulcer.

Gastric Contents.

After a test meal the gastric contents show the presence of hydrochloric acid, usually diminished in percentage, as is usual after a gastro-jejunostomy. Free HCl may be present.

X-ray Examination.

X-ray examination may or may not be of value. In our cases it was inconclusive. In the case of Carnot two examinations were made: at the first the bismuth enema was arrested at the centre of the transverse colon and then passed, little by little, towards the hepatic flexure, whilst at the point of arrest the shadow of the stomach gradually appeared and was separated by an air bubble from the colon. At the second examination there was no gastric reflux to be seen. In the case of Downes the bismuth was seen to pass in both directions. Other observers obtained negative results and others again positive.

Other Methods of Examination.

Similarly in the case of other methods which have been used for the recognition of gastro-colic fistula, a positive result may or may not occur; such methods as have been employed are:

1. The giving of substances by the mouth which shortly afterwards may be recognized in the faeces (for example, charcoal or poppy seeds.)
2. The recovery of a coloured fluid by tubage of the stomach which has been injected as an enema.
3. The direct passage of air into the stomach on insufflation of the rectum, and vice versa.

It is not astonishing that these methods have yielded different results, when one considers that the cases differ considerably in the exact position and size of the fistula and probably in the fact that the opening may be in some cases valvular.

DIAGNOSIS.

The diagnosis is made by finding faecal material in the vomit or gastric contents of the patient. This may be very difficult when the leak is intermittent, but when the other symptoms suggest a fistula the attempt should be repeatedly made. If faecal material is present, the only condition likely to be confounded with fistula is intestinal obstruction, which might be suggested by the visible peristalsis which is seen in some cases of fistula, but the persistent diarrhoea and the fact that when constipated the patient is obviously better should prevent confusion. It is so easy to miss these cases that they should always be kept in mind and every case of vomiting and diarrhoea after gastro-jejunostomy thoroughly investigated. The special methods of investigation mentioned above are not likely to prove of value when faecal material is persistently absent from the vomit, but when foul gas is eructated and there is no vomiting the stomach contents should be investigated and these methods systematically employed. The presence of lienteric diarrhoea, if it happens, is by no means conclusive, as this may occur in intestinal catarrh.

PROGNOSIS.

The immediate prognosis is good if the case is operated upon. Probably it is always eventually fatal if not operated upon. Of the 31 cases recorded 4 were not operated on and all died, one of perforation of another jejunal ulcer, one of haemorrhage, and two of inanition. Of the 27 cases operated on 21 recovered and 6 died. Of the 6 deaths, in 2 a laparotomy was performed, but the fistula was not touched. Of the cases which recovered, 3 were operated on twice and one three times. The further history of these cases remains to be recorded.

TREATMENT.

The only treatment of any avail when a jejuno-colic fistula is established is by operation. The aim should, however, be to prevent the occurrence of jejunal ulcer, which is the cause of the fistula.

PROPHYLAXIS.

Whether the jejunal ulcer commences at the anastomosis and is the result of the injury inflicted by the operation, or whether it occurs in the jejunum at a distance from the stoma and involves another etiological factor, there is no doubt that the free HCl of the gastric contents plays the same part during the process of the formation, of the spread, and of the healing of the ulcer, as it does in the case of ulcer of the stomach. The experiments of one of us (C. B.[19]) have demonstrated what are the precise effects of this acid at each of the above mentioned stages. The HCl acts as a protoplasmic poison in strengths such as may be found in the condition of hyperacidity; it possesses irritant properties, and causes gastritis and follicular ulceration; it also possesses necrotic properties, and in strengths which are of themselves inert it can add its devitalizing power to that of another agent, and thus initiate self-digestion. Thus the formation and spread of an ulcer are greatly facilitated or even initiated, and the healing is delayed owing to necrosis of the connective tissue base of the ulcer, so that the epithelium has no stroma over which to grow.

After the operation of gastro-jejunostomy the percentage of HCl in the gastric contents is, as shown by Paterson[20] and Willcox,[21] diminished, and it is sometimes absent, but several observers have shown that in jejunal ulcer hyperacidity is commonly present, and Paterson,[22] who strongly supports the importance of this action of HCl, has shown that in such a case the acidity fell on a milk diet, and remained down after operation, but that later, with a recurrence of the pain, hyperacidity again appeared.

The work of Pavlov[23] has shown that certain foods call forth but little secretion of gastric juice, whilst others produce a maximum secretion. We have thus a method whereby we can control the amount of gastric juice secreted, and if after the operation of gastro-jejunostomy we put these physiological principles into practice, and carefully diet our patients, we shall be doing our best to remove one of the causes of jejunal ulcer. At the same time, the administration of alkalis will materially assist towards this end.

REMARKS ON SURGICAL TREATMENT (W. T.).

It is obvious that the three cases that have come under my care do not afford material for any very wide general conclusions. It would seem that in general the obliteration of the fistula without interference with the gastro-jejunal anastomosis is the best procedure to carry out if it is possible and there is no contraindication such as active ulceration or the presence of a stricture.

To secure satisfactory closure of the openings which have constituted the fistula it is essential that the colon and jejunum should be freely separated from one another, and it is desirable that a piece of omentum should be put between them.

If it is not possible to get the colon and jejunum well separated without encroaching on the anastomosis, then the latter must be sacrificed and the piece of stomach wall

containing it excised. If a stricture is actually present or suture of the opening is likely to narrow too much the lumen of jejunum or colon, an appropriate resection will be necessary.

In any case the establishment of a temporary caecostomy is of the greatest value. The sole purpose of such an opening is to prevent the accumulation of flatus in the colon above the suture line. By it the sutures are relieved from any strain and the patient is entirely spared the discomfort and danger of post-operative distension.

If the pylorus is still obstructed and it is necessary to obliterate the anastomosis, a fresh gastro-enterostomy must be done or an extensive resection of the stomach, such as described by Clairmont.

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SOME NOTES ON MILITARY ORTHOPAEDICS.

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IN this article, which is based upon experience gained in the orthopaedic department of a central military hospital, we desire to draw attention to certain principles which are not so widely known to the profession generally as they ought to be, and to give some few illustrative details. We do not claim to have made original discoveries, but we have had ample opportunity of applying and learning the value of those made by others, and of working out methods of treatment best suited to the multiplicity of complicated lesions with which we have had to deal.

Our work was under the ultimate supervision of Colonel Carless, C.B.E., A.M.S., Consulting Surgeon to the Eastern Command, whose kindly criticism and unsparing help, and commendation when earned, made it possible.

The accumulation in England of chronic cases showing gross deformity and loss of function, the result of severe gunshot wounds, made it necessary to collect them in centres where they could be studied in detail and collectively, and where treatment could be instituted to restore the maximum function possible.

It was early seen that an authoritative statement of military orthopaedic principles, based on an exact knowledge of anatomy, physiology, and pathology, was necessary. The principles of treatment were established, and in this matter our country has been fortunate in possessing as Director of Military Orthopaedics one who has been described in America as the greatest orthopaedic surgeon in the world—Sir Robert Jones.

It was abundantly clear to those of us responsible for surgical cases in military hospitals that no one man could carry out satisfactorily the complicated investigation and detailed treatment required. No haphazard method would suffice, but a system must be instituted. Team work in the widest sense was necessary to achieve the best results, with the greatest economy of effort.

Team Work.

Each case was examined by the various men who specialized in some branch of investigation, and when the notes were completed, with photographs, stereoscopic radiographs, pathologists' reports, reports on electrical examination, results of dental examination, etc., the case was reviewed as a whole. The sequence of treatment, operative and otherwise, was considered, with the ultimate result to be hoped for. Each specialist carried out his share, and the head of the department reviewed the cases weekly. The individuals engaged in this work, by exchange of views and discussion of cases, gained a wider knowledge and a broader view than was possible singly. We all felt that by this means we were achieving results which justified our methods.

Those of us who served in the army abroad and had to deal with the severest primary lesions, and who on pension boards are now considering the ultimate results of such cases, are astonished at the wonderful functional recoveries which come before us. When it is remembered that the country has undertaken financial responsibility for these lesions, assessed on the existing degree of disability, it at once becomes apparent how well worth while this work has been to the nation, apart from the increased productive capacity and happiness of the wounded.

In noting these results it is hardly to be wondered at that Sir Robert Jones, whose principles have formed the foundation of military orthopaedic surgery, wishes to hand on to the civilian population the benefits now conferred on the soldier. The question is a national one, and comparison of expenditure and results to be obtained will show such a plan to be a national economy through the resulting increase in productive capacity.

In no field of medicine is the necessity for exact observation and clear thinking so necessary. A limb which at first sight appears hopeless may, as investigation is carried into each detail of its function, finally give a ray of hope, which persistent treatment justifies. Again, have we not often heard of useless massage, patiently carried out, for a joint with bony ankylosis? Examples could be multiplied.

Repair: Principles and Details.

In dealing with chronic sepsis and repair, the questions of phthisis, nephritis, syphilis, dental caries, secondary anaemia, and intestinal toxaemia are of the greatest importance. In the matter of "fresh air" we were able to make an interesting experiment. Our hospital was by the sea. Our surgical wards, built for that purpose, were of brick, large and airy, and we think would have been pronounced excellent by the greatest purist; but we moved our worst cases to temporary huts by the beach, where their beds could be carried out to the sea front, and where they remained all day. The effect was excellent. As the sun and wind bronzed them, so it seemed their appetites increased, they put on weight, sepsis diminished, and wounds healed. As they watched the bathers in the sea and the children on the beach their whole outlook on life changed, their neurasthenia diminished, and they too were on holiday and wanted to be up and doing again. Employment, amusement, surroundings, fresh air, and sleep—everything helped. The diet was varied and generous, and, when possible, adapted to suit particular tastes.

Anaesthesia.

In the giving of anaesthetics we found a useful field for ether by the rectum, with morphine and atropine. This was specially valuable in head, neck, and chest cases, and in patients who had been gassed or were bronchitic. An enema was given on the day preceding operation; rectal lavage with saline on the morning of operation, and a moderate breakfast. Morphine gr. $\frac{1}{4}$ with atropine gr. $\frac{1}{100}$ was given, and half an hour later 6 oz. of ether to 2 oz. of olive oil were very slowly run into the rectum by gravitation; this took twenty minutes to administer. Absolute quiet and suggestion of sleep were employed. When the patient appeared to be sleeping soundly he was carried from the ward to the theatre. Immediately the operation was over a flatus tube was introduced and the anaesthetic evacuated. The rectum was washed out several times with saline, and 2 oz. of pure olive oil introduced. The anaesthesia was light, without post-operative shock, and we had neither sequelae nor complications.

Vaccines.

Our experience of autogenous vaccines led us to believe that they undoubtedly assisted in the combating of sepsis, and that they were a safeguard against the "flare up" of a chronic lesion when an operation had to be performed.

Operation.

We early learned the value of as perfect an aseptic technique as we could practise. An already chronically infected wound gave added reason for the avoidance of a superadded sepsis in a debilitated patient.

We placed great importance on the line of approach to the focus we proposed excising, planning our incision and operation on anatomical principles. Sinuses very frequently lie in close proximity to important structures, and the scar tissue, moreover, tends to drag those structures out of their normal position. It is therefore unwise to follow a sinus as a matter of routine. Kocher's principles regarding incisions, which carefully avoid all nerves, were our guide. When possible muscle planes were followed. The ultimate scar of the operation and any limitation of movement which it might cause had also to be considered.

We may cite an illustrative case:

An officer was admitted with a sinus in the axilla, running through a dense mass of scar tissue to the scapula at the origin of the long head of the triceps. Several attempts had been made to reach the focus without success. Finally we approached it by detaching the infraspinatus from its scapular origin, thus exposing with ease the axillary border of the scapula. A considerable sequestrum was readily removed and unhealthy bone excised. The flap was replaced and the axillary sinus healed rapidly. With the recognized after-treatment the functional result was excellent.

In the young soldier the importance of the epiphysis must not be overlooked.

An apparently minor point, but one of very great importance, is that of fascial planes, spaces, and sheaths. An impressive example of this is to be found in lesions of the hand and wrist. It is most unfortunate that the surgery of this region is generally regarded as "minor," and practised so casually; it resolves itself into that of planes.

Sepsis in Bone.

The excision of infected wounds whenever possible, which was practised in primary wounds as a routine with such success in the later days of the war, proved to be of equal value in chronic cases. The curetting of sinuses leading to infected bone was a useless procedure. Bone cavities with chronic osteo-myelitis, and with or without sequestra, called for complete excision and the removal of overhanging edges. The cavity was left wide open and packed with gauze. We believe it mattered little what antiseptic was used if the operation was properly performed, and no antiseptic could make up for an incomplete operation. In our hands dichloramine-T in eucalyptol, etc., gave the most rapid results, producing healthy red granulations in a few days. The cavity was secondarily closed or covered in by sliding, pedicle, or Thiersch grafts, each method having its own indications.

The avoidance of unnecessary trauma was of primary importance if a severe reaction was to be averted. We used stonemason's chisels, made of hardened steel with very sharp edges. The chronic discharging sinuses of many months, and even years, were securely healed, and the function of the limb could now secure undivided attention.

Reamputations.

The principle that no plastic operation may be safely performed in the presence of sepsis is universally accepted. That reamputation is a plastic operation was early forced upon us in going into the history of patients who had undergone amputation; many showed repeated reamputations and reinfections—a little bit more of the limb had been lopped off on each occasion. Ill-considered surgery had increased the disability it had set out to cure.

In several cases of short thigh stumps with the scar adherent to the end of bone, we were able to turn a muscle flap over the bone end and so secure a good stump without further shortening.

Skin-grafts.

Many patients were disabled owing to weak scars, especially if adherent to bone, muscle, or tendon. The raising of such scars, with the introduction of fat grafts between them and the deeper structures, was not successful. The scar tissue sloughed—no doubt from interference with its blood supply. The only satisfactory procedure was to excise the scar and fill the gap, if primary suture were impossible, by a sliding graft of skin taken from over soft tissues in the neighbourhood—Thiersch grafting the denuded area, if necessary. It was important to remember that such grafts contracted, and must therefore be cut larger than at first sight appeared necessary. In some cases the condition of the limb did not permit of a sliding graft and pedicled grafts from a distant area were used. The operation was in three stages—(1) the fashioning of the pedicle; (2) the transference of the graft to the area to be filled; (3) the severance of the pedicle and its replacement. Some surgeons have reported unfavourably on this operation, but our experience was good. Possibly undue haste in performing the successive stages may account for failures. We allowed a fortnight to three weeks between each.

Muscles, Tendons, and Nerves.

The lesions of muscles, tendons, and nerves are closely associated. Our experience of muscles has been that of investigation and remedial treatment by means other than operative. The wasting, contracture, or lengthening in neglected cases was most difficult to overcome, and required patient treatment by massage, electrical stimulation, posture, contrast douching, and active exercises.

Where tendons were limited in movement by adhesions we emp'oyed a fat graft, after division of the limiting bands, with satisfactory results. At a later date, and especially in the secondary suture of severed tendons, we replaced the fat graft by a piece of aponeurosis removed from the front of the leg immediately above the ankle joint. This we wrapped round the traumatized tendon and suture line, with the deep (smooth) surface outwards (Mayer). In transplantation of tendons we made use of the minimum number consistent with fair function and the natural balance of antagonistic muscles. We realized the importance of correct alignment of the muscles and tendons and posture to approximate their origin and insertion. We found it equally important to avoid over-correction. Whenever possible, following the researches of Mayer and Biesalski, we made use of the sheath of the paralysed or damaged tendon. Every effort was made to secure implantation into bone which undoubtedly gave the best functional results.

Nerve lesions present a multiplicity of phenomena, some of an associated functional and organic syndrome which the investigations of Tinel, Dejerine, and others have done so much to elucidate. Here again we employed fat grafts after suture of divided ends when the junction lay in the midst of much fibrous tissue. In severed nerves end-to-end suture was the only method which gave favourable results in our hands. In regeneration of nerves Tinel's test of formication on percussion is undoubtedly the finest at our service.

Joints.

No lesion of joints are more common than ankylosis following injury or the injury of structures affecting them. No conditions require more careful consideration before interference. The established practice of putting a joint through its complete range of movement under an anaesthetic in cases of adhesions following disuse and certain non-pyogenic infections is rarely applicable to the conditions so frequently existing in war wounds. Massive adhesions may preclude movement by reason of the risk of fracture, or the production of considerable trauma by forcible movement may result in the same degree of limitation as before treatment. The gradual stretching of intractable adhesions by the various forms of rack splint yields much more favourable results. In many cases, especially when complicated by nerve lesions with long-standing paralysis or severe scarring with loss of muscle, it was felt best to leave the joint severely alone if in or near the optimum position.

In malposition we practised excision of the joint, in some cases with a view to ankylosis, in others—for example, the elbow—to obtain as much active movement as possible. It was surprising to find how great a range of useful movement could be secured, especially at elbow and

shoulder, after excision. It was our practice to sacrifice diseased or doubtful bone quite freely, following rigidly the subperiosteal method of Ollier. We commenced passive movements on the day following operation, and encouraged attempts at active movement as soon as the swelling or reaction had subsided. We used splints which enabled patients to get up as soon as the effects of the operation had passed off.

Bone.

We have already referred to our experience in dealing with sepsis in bone, and will only mention the subject of mal-union and non-union. In mal-union, where the conditions interfered with the function of the limb, we believed it wise to avoid the lately infected area if there had been extensive or deep sepsis, and to do an osteotomy in a healthy area. In non-union, often with a considerable gap, we employed lateral grafts or medullary pegs. We preferred the medullary peg, taking it from the tibia. This enabled a portion of healthy bone to be placed in firm contact with a vascular area in the affected bone, whereas in a sliding graft bone is being dealt with which is often rarefied by disuse or porous by previous infection. Transplantation of a massive lateral graft, including medulla, gave good results, but it was very difficult to secure a firm apposition. The medullary peg has the advantage of stability.

This paper has mainly dealt with certain points, in investigation and operative treatment, which have appealed to us. We would give a wrong impression of the work did we not mention in conclusion that the after-care of the patient occupied the bulk of our time. In the massage and electrical departments, in the gymnasium and workshops, in organized exercises, sports and amusements, the gradual re-education of function was attempted. It may be interesting to mention that little special equipment was obtained for this work; the adaptation of the material to be found in any hospital met most of our requirements.

The enthusiasm and organizing ability of Lieut.-Colonel C. R. Sylvester Bradley, R.A.M.C., overcame all difficulties, and to him we are indebted for permission to publish this article, based on the practical work in the hospital under his command.

PHYSIOPATHIC PARALYSIS OF THE HAND, AND ITS CAUSATION.

By R. G. ABERCROMBIE, M.D.,

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BABINSKI,[1] who first clearly described the condition, suggested the name of "physiopathic paralysis" for certain anomalous cases of paralysis and contracture of the hand following upon wounds of the upper extremity. The cases are of special neurological interest in that their general characteristics point to a psychological origin, yet, unlike other forms of functional paralysis, they exhibit well-marked organic changes in the tissues.

Clinical Features.

A large number of cases amongst soldiers and war pensioners, recently under my care, have provided material for the following observations, which are chiefly concerned with those features which serve to elucidate the pathology.

Without apparent adequate cause, a wound of the upper limb is followed by loss of power in the hand of the affected side. Neither the situation nor character of the wound bears any relation to the grade of the subsequent paresis; none of the symptoms correspond to the territory of any particular nerve.

The short muscles of the hand and the long flexors are chiefly affected. The muscles are sometimes limp, more often spasmodically contracted, so that the hand assumes various postures; frequently the palm is hollowed and the fingers imbricated one over the other, to form the so-called "accoucheur's hand." The paralysis is usually not complete; feeble movements can be performed in a tremulous or "waggling" manner. The thumb often escapes, so that the hand can meet the needs of a hospital patient or pensioner, though inadequate for any useful purpose.

The sensory symptoms are limited to an uncertain and varying hypo-aesthesia and contortions of apparent pain on the performance of passive movements. The patients are unduly apprehensive of pain, and are devoid of the normal impulse towards recovery.

The affected muscles waste, often extremely; they exhibit mechanical hyperexcitability; slight electrical changes occur, but the reaction of degeneration is not present. The skin, subcutaneous tissue, and bones share in the atrophy, so that the whole hand appears attenuated and smaller than its fellow. The skin is salmon-pink or cherry-red in colour, with a satin-like sheen around the roots of the nails. Trophic sores do not occur. The nails are curved and longitudinally grooved, sometimes greatly deformed; beneath their free margin a small fold of skin is often visible.

Profuse sweating of the palm is a common and striking feature; and it is of special interest that this symptom is directly influenced by emotion. If the affected hand be unexpectedly seized and examined, the palm may be found normal or slightly moist; if now the hand be made the subject of discourse to bystanders, beads of sweat form upon its palmar surface, until finally a sheet of moisture is formed over the whole palm. The palm of the opposite hand may also become moist, but not to anything like the same extent; meanwhile the rest of the body shows no abnormal sweating. Localized flushing of the affected hand may sometimes be similarly produced.

Cases are sometimes left in massage departments without adequate psychological treatment, so that the natural evolution of the symptoms is undisturbed. Such cases in process of time enter a clearly marked late or secondary stage, in which the profuse sweating, the congestion, and the idio-muscular reflex have disappeared, but the wasting and the paresis persist; the latter is often accentuated by adhesions, and in severe cases by actual distortion of the joints.

The foot may be affected, but this is rare. I have seen five such cases with well-marked trophic changes during the last year. The inverted and hollowed sole and tense tendo Achillis appear to exercise a great attraction for surgeons; three of the five cases, from different parts of the country, had been submitted to tenotomy. In each case operation rendered the condition worse.

Pathology.

Babinski has suggested that the symptoms are reflex phenomena, the peripheral wound supplying an irritative stimulus to a centre in the cord, from which centrifugal impulses pass to the affected member. This view has not, however, been widely accepted in this country; the general features, and especially the rapid and striking improvement which often follows appropriate psychological treatment, have led to the general belief that the symptoms are essentially of psychological origin. The paralysis is thus regarded as hysterical and the trophic changes as merely the result of disuse.[2]

This explanation, completely adequate for the motor symptoms, is quite insufficient for the trophic changes which constitute the essential distinction between these cases and those of ordinary hysteria. In the first place, many long-standing cases of hysterical paralysis of the hand occur in which the disuse causes no trophic changes at all, or at the most a slight general wasting of the muscles; whereas in physiopathic cases severe trophic changes may occur with considerable rapidity. Again, were it true that the trophic changes were merely the result of disuse, they would become more accentuated the longer the disuse lasted. But this does not occur; on the contrary, in long-standing cases, as mentioned above, the profuse sweating, congestion, and idio-muscular reflex tend to disappear, notwithstanding the persistence of the paralysis. Finally, the physiopathic condition is essentially a war phenomenon; Weir Mitchell noticed similar cases during the American Civil War.[3] In civilian hysterical paralysis localized sweating sometimes occurs, and may be regarded as a minor physiopathic manifestation; but severe trophic changes are exceedingly rare.

Some additional factor must therefore be imported by the effects of war, capable of superadding trophic changes in cases of functional paralysis.

Certain general symptoms, occasionally observed in unwounded men during medical inspection behind the line, throw light on the nature of this additional factor. Excessive sweating of a truly remarkable grade was sometimes to be noticed; even in cold weather the sweat

streamed down the upper arm from the axilla, and fell in rapid drops from the elbow to the ground; while the hairy scalp smoked from the warm moisture. Men showing this phenomenon were usually wasted, and a light tap on the pectorals provoked a strong idio-muscular contraction. These symptoms were seen in men going forwards, prepared to do their duty; the higher faculties still retained control of the machine, although the emotional strain of war had clearly produced a disturbance of the sympathetic system with its associated perversion of the internal secretions. The sweating, wasting, and muscular mechanical hyperexcitability thus produced are precisely the prominent symptoms in physiopathic paralysis.

Explanation of Symptoms.

The emotional strain of war induces an increased suggestibility (of which the exact process, conscious or subconscious, is outside the scope of this paper), so that a wound of the upper extremity is readily followed by hysterical paralysis of the hand. If the emotional strain has also brought about the profound disturbance of the sympathetic and internal secretions described above, these will specially affect the paralysed member, the nutrition of which is already lowered by immobilization. Further, since local sweating of the affected hand may be produced by emotion, it is reasonable to assume that other sympathetic impulses governing nutrition may be similarly affected.

In neurasthenia, morbid emotional states are generally credited with the power of causing functional disorders which may ultimately result in organic changes, as for example, in the abdomen. In physiopathic paralysis this process may be watched; and it is of special interest to observe its localization in the member towards which the patient's attention is directed, and which is the focal point of his emotions.

The physiopathic condition may thus be regarded as forming a link between hysteria and neurasthenia. The frequency of its occurrence in war is well explained by the depth of the emotional disturbance which war produces.

Relation to Nerve Lesions.

An irritative nerve lesion, owing to the pain and discomfort it causes, is not infrequently the provoking agent of a physiopathic condition; thus different areas of the same hand may show physiopathic changes side by side with the results of an organic nerve lesion. Such cases are often misunderstood; careful examination, however, readily discriminates the two conditions, the organic irritative lesion being distinguished by such features as the position of the wound, group-wasting, muscular tenderness, trophic sores and desquamation. The colour of the skin in the two areas is also often different. On examining such a hand I have often noticed the physiopathic area profusely bedewed with sweat, whereas the organically affected area remained dry, doubtless owing to the obstruction of the sympathetic impulses.

Treatment.

Psychological treatment by means of explanation, strong encouragement and re-education is the essence of success in dealing with these cases. The removal of the morbid mental state cures the paralysis and simultaneously eliminates the source of the perverted sympathetic impulses which are the cause of the trophic changes, the disappearance of the latter being greatly facilitated by movement and physical therapeutics. Recovery is almost invariable, and relapse is rare. Treatment is rendered noticeably easier by the patient's demobilization from the army.

Conclusion.

The emotional strain of war causes an increased suggestibility, with consequent liability to hysterical paralysis; the same emotional strain may also induce a disturbance of the sympathetic, the circulatory and trophic effects of which show themselves specially in the tissues of the paralysed member, partly on account of its immobility and partly owing to the localizing influence of the patient's emotions. This two-fold effect of hysterical paralysis with severe trophic changes constitutes the physiopathic condition.

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SOME REMARKS UPON SYPHILIS, MORE ESPECIALLY INHERITED SYPHILIS.

BY

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SIR JONATHAN HUTCHINSON said that "thousands of men marry at or about the end of two years after having had primary syphilis, and many at much shorter periods, yet the instances of communication to their wives or children are but infrequent." With this statement I cannot agree. I have for many years watched the children of men whom I have known to have had syphilis, and in almost every case a serious defect of some kind has shown itself in their children; this is true in cases where the parents were carefully treated, some for as long as five years, and more than one by Sir Jonathan Hutchinson himself. The usual manifestations of inherited syphilis are well known, but I wish to make special mention of certain diseases which are not generally recognized as due to this cause.

Nervous Diseases.—I think the large majority of cases of epilepsy occurring in the young are due to syphilis either in the parent or in the grandparent. Epilepsy occurs most commonly in infancy and at puberty. Recurring "convulsions" in infants are usually epileptic and may be cured by a course of mercury; I usually rely on hyd. cum creta (gr. ½ to 1 ter die), or inunction with ung. hydrargyri fort. Epilepsy beginning later is curable, provided the disease be at once treated with mercury; but when such cases are left untreated for a few years cure is less certain and treatment has often to be carried out for two years or more. For adults, and even for older children, I nearly always prescribe mercury perchloride, which I prefer to the green or red iodide, because, in contrast with the iodides, I have never known it to produce salivation, although continued for many months, or even years.

As an illustration I mention the case of a girl of 15, who suffered from large lymphadenomata on both sides of the neck, that on the left side beginning later in spite of a course of treatment by potassium iodide in large doses. This patient was given mercury perchloride gr. $\frac{1}{20}$ ter die, increased gradually to gr. ¼ ter die. The treatment lasted for over seven years without intermission, and there was never the slightest sign of salivation; the tumours almost completely disappeared. In this case the father denied having had syphilis, but he died at the age of 84 in an asylum, and had Argyll Robertson pupils. This girl at 42 is still well and has had no recurrence.

For epilepsy occurring in later life similar treatment is invaluable. The following case is instructive:

A man of 65 began to have epileptic fits, which occurred during a period of some weeks. He admitted having had syphilis when 23 years old. He was treated with mercury perchloride, and his fits soon disappeared. He died from spastic paraplegia at the age of 77.

I am acquainted with many cases in which one or more children of syphilitic fathers developed epilepsy at puberty, and were cured by courses of treatment by mercury. I know of two or three cases of optic neuritis occurring in adults whose fathers were syphilitic.

One of these was treated by an eminent oculist, but did not receive mercury. His father sent him to Pagenstecker, who took him into his house for a few weeks and cured him by rubbing in mercurial ointment.

Another youth, who had well-marked syphilitic teeth, otitis media, and interstitial keratitis, was treated by oculists for nearly two years, being given potassium iodide and ten drops of liq. hydrargyri perchloridi (that is, gr. $\frac{1}{120}$ ter die). Pagenstecker cured him in a month by mercurial inunction.

The following is a remarkable case, showing, I believe, the effects of syphilis on the third generation.

A girl of 24 consulted me for spastic paraplegia with weakness of the arms and affection of the eyesight. Her grandfather and grandmother died between 50 and 60 years of age from tabes dorsalis and apoplexy respectively. Her father, who denied having contracted syphilis, was nervous and short-sighted; he had had an attack of unconsciousness lasting for a week (he died from carcinoma of the caecum subsequently to his daughter's illness). Treatment of the patient by mercuric perchloride led to very striking recovery of the eyesight and arms; the legs did not improve.

I have traced the cause of several cases of enuresis to hereditary syphilis, and have cured them by a course of mercury.

Skin Diseases.

I have treated several cases of severe psoriasis with mercury. My first case came under observation at an early age, and showed an excellent result:

A boy of 12 or 13 had widespread psoriasis with abundant rash. Treatment with Fowler's solution in large doses caused improvement, but there were three relapses. I treated him with mercury perchloride and he made a good recovery, having no relapse during the many years in which I continued to come into contact with him. Subsequently his father consulted me for paresis of the right arm, and admitted having had a Hunterian chancre before the boy was born.

Tuberculosis of various types is not uncommon in syphilitics and their children; I mention two cases:

A lady suffered from fibroid phthisis, and died at the age of 39. Subsequently her father consulted me for severe headache, and acknowledged having had a Hunterian sore before his marriage. .

A man of 35 suffered from haemoptysis, and tubercle bacilli had been found in the sputum. He admitted having had syphilis; I gave him treatment by mercuric perchloride. He took a voyage to the Cape and has remained well for ten years.

A careful study of family histories has convinced me that there is a want of stability about children of syphilitics. Among such cases I know of two who fell down dead when engaged in a paper chase, another who shot himself, and two who were rusticated from college. Of the latter, one died of phthisis and the other has a chronic suppurating sinus. I believe, also, that there is a much nearer relation between syphilis and cancer than is usually believed, and more especially between contracted syphilis in the parent and cancer in the offspring. I know of six syphilitics (acquired) who died from cancer of the gullet.

Of the wives of men who have had syphilis, I find that some seem to be unaffected and live to a good age, but a certain number die young. I can recall four or five instances of such women who have died from so-called puerperal fever, and several cases who have suffered from albuminuria, convulsions, or iliac thrombosis during or after pregnancy. I am acquainted with a case of Graves's disease cured by mercury, which occurred in the wife of a syphilitic; also with a similar one in the daughter of a syphilitic. A man I know had syphilis; his first wife had one child, and died from alcoholism; his second wife died from puerperal convulsions following albuminuria and dropsy. Other instances which I have observed of diseases occurring in those whom I have known to be affected with syphilis are: Dupuytren's contracture (several cases), so-called tuberculous glands of the neck, and ulcerative keratitis. I believe that Bright's disease is usually syphilitic, and recall the striking case of a medical man who had a digital chancre, and died at the age of 44 from Bright's disease.

It is often stated that congenital syphilitics may have healthy children. With this I agree, but I believe it partly depends upon whether one or both parents are congenitally syphilitic. I am acquainted with one case in which the son of a syphilitic married the daughter of a syphilitic; they had three children, but all died young. I knew the children of a healthy mother and a father who was congenitally syphilitic; one child died suffering from marasmus and an eruption; the others were apparently healthy.

I have a strong suspicion that many chronic diseases are due to a syphilitic taint. These cases, however, are very difficult to prove, and as one meets only one or two in a lifetime I make this remark that others may be induced to follow up clues. I have been designated a "syphilophobic," but I claim to have found evidence of many unrecognized cases of this disease. It is extremely important first to inquire most carefully regarding the family history, and, secondly, to examine the teeth. In many cases of congenital syphilis, although the typical teeth as described by Sir Jonathan Hutchinson may not be present, the teeth are irregular and the lateral incisors are often small or absent. Early decay is frequent. Some hereditary syphilitics have good teeth, but are affected in other ways.

TRANSFUSION OF BLOOD IN NEPHRITIS.

BY

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BLACKBURN.

IN view of the interest which will be aroused by Dr. W. Blair Bell's article in the BRITISH MEDICAL JOURNAL of May 8th on the treatment of eclampsia by transfusion of blood, it may not be out of place to record the notes, made at the time, of the following case, which was admitted under my care to No. 64 Casualty Clearing Station in France during the summer of 1918.

The comparative incompleteness of the notes must be excused by the fact that the casualty clearing station was extremely busy at the moment.

A private, aged 22, who had previously been healthy, suffered from headache and vague generalized pains for ten days. On admission he was slightly drowsy and had a coated tongue; the systolic pressure was 100 mm. of mercury, the diastolic 60. The urine was acid, specific gravity 1010, with much albumin present, but no sugar; the centrifuged deposit showed the presence of many casts (chiefly granular), but no blood cells were noted on this nor any subsequent occasion. Respiratory, circulatory, and other organs appeared to be normal. His vomiting continued, and he could not retain anything given per rectum. During the first and second days he passed 10½ oz. and 2 oz. of urine respectively, and on the second his blood pressure fell to 90 mm. systolic, 40 mm. diastolic; suppression of urine seemed imminent and his condition was very grave. It was decided to try the effect of blood transfusion, and I injected intravenously 1,140 c.cm. of fresh blood from a donor of the same group (IV) as the patient; the blood pressure subsequently rose to 100 mm. systolic and 50 mm. diastolic. Next day the diastolic pressure rose to 70 mm. of mercury; vomiting became much less frequent and in the ensuing twenty-four hours he excreted 24 oz. of urine. He was able to retain "rectal salines" and was given hot packs, as well as 1 c.cm. of pituitrin six-hourly. Captain J. W. McLeod, R.A.M.C., kindly examined a specimen of blood and reported marked deficiency of fixed alkali, as estimated by Sellard's method.

Next day, in spite of retention of the "salines" and diminution of vomiting, urinary excretion fell to 16½ oz.; he was given intravenously one pint of a 2 per cent. solution of sodium bicarbonate, and during the next twenty-four hours he only vomited once and passed 22 oz. of urine. A pint and a half of sodium bicarbonate solution was given intravenously next day; vomiting ceased, and he passed 27½ oz. of urine in the twenty-four hours. He was now able to retain fluids given by the mouth, and 20 grains of sodium bicarbonate were given two-hourly. The excretion of urine rose to 54, 56½, and 61 oz. during the next three days respectively; the urine still remaining acid, the dose of sodium bicarbonate was increased to 30 grains, and he was given in addition 15 grains of potassium citrate three times a day, whereupon he passed alkaline urine to the amount of 61 to 81 oz. per diem during the next five days. By this time his general condition had become excellent, and the fixed alkali in the blood, as determined by Sellard's method, was normal. He was evacuted to the base on the sixteenth day; a last specimen of urine examined contained a faint cloud of albumin, and epithelial and granular casts were still present.

From a review of this case it seems clear that the transfusion of blood, performed when the patient was so ill that recovery seemed almost impossible, was the turning point in the course of the disease. We are still in a large measure ignorant of the metabolic changes associated with nephritis; the disease may depend on a deficiency of some chemical substance in the blood or tissues, or it may be due to an infective process the nature of which has not yet been determined. In either case, and in view of the low blood pressure, to introduce blood from a healthy donor of the same group appeared a rational procedure. It is important to point out, however, that there is no evidence that a solution of sodium bicarbonate given in the first instance would not have produced an equally satisfactory result; in the next similar case which comes under my care I shall give the bicarbonate first and the blood afterwards, if necessary. Everyone who has kept a careful record of blood pressure in nephritis will agree that the prognosis is worse on the whole in cases having a low systolic pressure; in such cases the above method of treatment seems to offer a hope of success. It would interest me to know if this was the first time that transfusion of blood was used in the treatment of nephritis.

THE physicians and surgeons of Madrid have adopted a resolution expressing determination to refuse to serve in hospitals unless well-to-do persons are forbidden to take advantage of free consultations. They declare their readiness to treat the poor without fee at hospital and dispensary consultations.

Memoranda:

MEDICAL, SURGICAL, OBSTETRICAL.

BRONCHIECTASIS.

DR. JEX-BLAKE'S admirable lecture on bronchiectasis reported in the BRITISH MEDICAL JOURNAL on May 1st, 1920, serves to recall some interesting features of cases of this malady seen by me recently.

A man, aged 48, died from bronchiectasis of pneumonic origin after fourteen years. He suffered from recurrent severe haemoptysis, and from profuse purulent expectoration which would be suddenly ejected in considerable quantity, filling his mouth and nose. Chronic rhinitis resulted by direct infection from the pus, and both maxillary antra were in turn affected and drained for empyema. Another prominent symptom was severe frontal headache, which was undoubtedly due to a chronic inflammatory state of the frontal sinus, although no pus was at any time made out by radiographic examination. It is noteworthy that in this case, despite severe local lesions, general vigour was well preserved for many years.

A second case, aged 57, has suffered from bronchiectasis of simple origin for eight years, and his general state, despite multiple lesions, including nephritis, is still well maintained. The interesting features are (1) the tongue is enlarged, deeply fissured, and looks unhealthy generally, which condition is probably due to direct infection from the expectorated pus, for the more usual causes of glossitis are not present.

These direct effects of contact with the purulent exudate suggest a frequent use of mouth-washes, and also of nasal antiseptic fluids in suitable cases.

The second case for a year at least has suffered from chronic nephritis with albuminuria to the extent of 4 parts per 1,000 (Esbach). In the absence of other antecedent causes the nephritis is probably due to lardaceous disease, for the spleen is palpable, but no hepatic enlargement is present. There is no polyuria or other urinary changes usually associated with lardaceous disease.

The variability of the physical signs described by Dr. Jex-Blake can usually be shown at the time of examination, as it is not difficult to secure the expulsion of an ounce or more of pus.

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SPONTANEOUS RUPTURE OF MALARIAL SPLEEN.

SIR JOSEPH SKEVINGTON'S note on spontaneous rupture of a malarial spleen (April 24th, p. 571) leads me to relate two cases of this rare accident which I saw about fifteen months ago in Macedonia. I can only speak from memory, for I have no notes.

The first was an English soldier admitted for malaria late one night to a hospital reserved for medical cases. He had come a long distance over rough roads with a large convoy. On admission nothing special was noted. In the morning he complained of abdominal pain, but his symptoms were not sufficient to arouse anxiety till evening, when it was thought, according to various opinions, that he had perforated gastric ulcer or acute appendicitis. As there was no surgeon in this hospital I was sent for from a neighbouring one to see him. He was very pale, which I thought might be accounted for by the anaemia of malaria; his pulse was rapid and feeble; the whole abdomen tender, rigid, and distended. He was cold sweating, and appeared to be *in extremis*. He gave a history that would well fit with a chronic gastric ulcer. I agreed with the diagnosis of perforated gastric ulcer, and arranged for immediate operation. Open ether was given and saline infusion started; then a median incision was made, and to my surprise I found the belly full of blood. As the spleen seemed to be the most probable source, I cut across the left rectus and excised the spleen as quickly as possible. There were adhesions between the spleen and the diaphragm. At the end of the operation he was so nearly dead that we never expected to get him off the table alive; he, however, reacted to strenuous measures of resuscitation, and made a steady recovery to the point when his stitches—through-and-through all layers—were taken out; then he burst, but was reclosed and got on all right after that.

The other case was a Russian; the spleen ruptured whilst he was sitting up in bed. He was operated on at a neighbouring hospital, and transferred to my division about a week later. The stitches tore out, the wound gaped. Further attempts to sew it up were fruitless. He died.

It seems from these cases that the healing powers are so reduced by the cachexia of malaria and loss of blood that the tissues possess little healing power and should therefore be sewn up as carefully as the condition of the patient permits, and that deep stitches should be left in much longer than usual.

The spleen which I removed was about six times the normal bulk; there were adhesions to the diaphragm and a large subcapsular haematoma, with a small rent in the capsule. My idea is that during the jolting of the journey the capsule adherent to the diaphragm had torn away from the pulp and so started haemorrhage, and that some time next morning the capsule had given way, allowing haemorrhage to continue.—I am, etc.,

Guildford. E. W. SHEAF, M.C.Cantab.

Reports of Societies.

PUERPERAL SUPPRESSION OF URINE.

AT a meeting of the Edinburgh Obstetrical Society, held on May 12th, with Dr. WILLIAM FORDYCE, President, in the chair, Professor ROBERT JARDINE and Dr. A. M. KENNEDY read a paper on suppression of urine in pregnancy and the puerperium, and its relation to symmetrical necrosis of the kidney. The histories of eleven cases were reported and the pathological findings were described except in the one case which recovered.

The patients were all towards the end of pregnancy, except one in whom the condition developed at four and a half months. Suppression in one case lasted eight days. Unlike typical eclampsia, fits were not characteristic. The condition corresponded more to an eclamptic state in which the bulk of the mischief fell on the kidneys. The cases showed that where the suppression was completely established the condition was hopeless. In the case which recovered the suppression was only partial. The damage to the kidneys was, in a completely established case, so extreme that decapsulation was of no avail. The kidneys showed more or less uniform necrosis of the outer two-thirds of the cortex, which were separated from the living inner third by a haemorrhagic zone. At intervals from this zone of congestion numerous strands of congestion passed out to the surface, which had a mottled appearance. The necrosed area also involved the inter-pyramidal cortex. The kidneys were symmetrically involved. On microscopic examination the kidneys usually showed no evidence of antecedent disease. Rarely signs of preceding chronic nephritis might be present. The degree of necrosis corresponded with the duration of the suppression of urine. In the early stage the necrosis was of a patchy character and in the neighbourhood of the patches there was intense congestion. There was extensive thrombosis of the cortical blood vessels, which did not extend beyond the margin of the necrotic area nor involve the vascular arches; it was more widespread in the oldest cases. In the earliest case thrombosis was infrequent. The explanation of the changes was somewhat difficult. One of the cases had symptoms of Raynaud's disease, and the question arose as to whether the condition was dependent upon spasm of the smaller renal arteries, with consequent thrombosis and anaemic infarction. This interpretation was ruled out as evidence of arterial spasm was present in only one case of the series. It seemed more likely that the changes were due to the direct action of the toxin, which damaged the endothelium, thus causing thrombosis and then necrosis. The changes in the liver were similar to those found in eclampsia.

Professor LORRAIN SMITH agreed that the condition suggested the presence of a toxin which led to such universal damage to the blood vessels that it eliminated the function of the kidney even before it had passed through to the tubular structures. He referred to the very special way in which the poison attacked the renal vessels.

Sir DAVID WALLACE was struck by the fact that in these cases the suppression seemed to kill the patient very quickly. In surgical cases of suppression the patients lived very much longer, sometimes as long as fourteen days. He agreed that decapsulation seemed to be of little value in these cases.

Dr. MILLER had frequently been struck by the toxic condition of the kidneys in pregnant women who had died from intercurrent disease. It seemed to him that in eclampsia one must look for an exaggeration of the same poison which was always present.

Dr. BERRY HART congratulated Professor Jardine and Dr. Kennedy on the persistence with which they pursued their investigations from year to year. With reference to the question of how long a patient could live with complete suppression of urine he referred to a case in which a horse-shoe kidney was removed by the surgeon in mistake for an abdominal tumour. The patient lived eleven days.

Dr. HAIG FERGUSON referred to the advantage of antenatal care of the pregnant woman. In the Lauriston Home in Edinburgh for unmarried girls pregnant for the first time, which admitted an average of seventy cases a year, there had been no case of eclampsia over a period of nineteen years. He believed that the toxin was derived from the placenta, and in a case where the cervix was closed and there was no attempt at labour he strongly advised Caesarean section.

Dr. JAMES YOUNG noted that in three of Professor Jardine's cases there was evidence of haemorrhage before the birth of the child; one was accidental haemorrhage, the others were placenta prævia. The point arose as to whether the toxic state was not secondary to a degeneration in the placenta subsequent to its detachment from the uterine wall.

The PRESIDENT said he had repeatedly seen cases of suppression of urine recover, though he had never had a case of complete suppression.

FOR AND AGAINST CIRCUMCISION.

AT a meeting, held on March 12th, of the Section of Obstetrics of the Royal Academy of Medicine in Ireland, the President, Dr. HASTINGS TWEEDY, in the chair, Dr. SPENCER SHEILL read a paper on circumcision as an ancient rite and as a surgical procedure, in which he dealt with the antiquity of the rite among the Mohammedans, Copts, Memons, Boris, the New South Wales and Amazonian tribes, and the Semitic races. He pointed out that the Jewish operation had not the result of reducing sexual desire; the inner layer of the foreskin, which carried most of the sensory nerves, was not amputated. Dr. Sheill showed that fertility in the female was directly aided by circumcision. He condemned non-use of anaesthesia in ritual circumcision as inflicting unnecessary pain on the infant. Circumcision should be advised as a real help to the weakest spot in the human character.

Dr. SOLOMONS said that the subject was contentious and very important. Most educated people asked to have their sons circumcised; he thought it an excellent thing to do; it helped to prevent hernia due to straining, and later it helped in preventing masturbation. The ordinary schoolboy was not taught to keep himself clean, and if he were taught he thought too much about the matter. No anaesthetic was necessary when circumcising infants—in fact it was harmful. According to statistics by Breitenstein, syphilis was five times greater in the uncircumcised.

The MASTER OF THE ROTUNDA said that when consulted on the subject he advised the operation. He had seen it done very dexterously as a Jewish rite, and had adopted that method. He thought the uncircumcised more likely to contract syphilis.

Dr. TWEEDY had never satisfied himself that the craze for circumcision was justifiable. According to the laws of evolution the foreskin must have been greatly needed by the human race or it would not have persisted. The statistics quoted by Dr. Solomons had little value. He knew of three fatal cases, one from chloroform. There was often alarming haemorrhage.

COLONIC ETHER ANAESTHESIA.

AT a meeting, held on April 9th, of the Section of Surgery of the Royal Academy of Medicine in Ireland, the President, Mr. J. B. STORY, in the chair, Dr. A. E. BOYD read a paper on oil ether colonic anaesthesia. After a description of Gwathmey's technique, in which an ounce of 75 per cent. ether in olive oil is injected for every 20 lb. body weight of the adult patient, he described his own method of using a 50 per cent. solution of ether in oil. He believed that control was greater and the margin of safety wider with the weaker mixture, of which the effect could be supplemented by a little ether on an open mask. The danger of colonic irritation was also lessened; only one of his cases had had any irritation at all. He described a number of difficult cases successfully anaesthetized by this method. One only had given cause for anxiety which could be attributed to the anaesthetic. The method was invaluable for operations on the head and neck, and especially when it was desirable to avoid the factor of psychic shock, since the patient was unaware of the nature of the colonic injection.

Dr. MELDON asked whether this method was contraindicated in cases in which the cautery had to be used in the neighbourhood of the mouth. Excretion by the lungs went on for hours after colonic etherization.

Sir W. I. DE C. WHEELER had to record a fatality under rectal anaesthesia in a pensioner, a robust man who had a hole in his skull the result of injury.

The technique was that recommended by Gwathmey, a 5-grain capsule of chloretone being inserted into the rectum. The bowel was washed out the night before and on the morning of the operation; six ounces of ether and two ounces olive oil were given per rectum an hour before. Open ether was also given by the mouth. Anaesthesia was very light. The bowel was carefully washed out at the end of the operation, which lasted one hour. An hour afterwards there was an accumulation of mucus in the man's throat; he was very cyanosed, but did not wake up sufficiently to get rid of the mucus himself. He died four hours after operation.

This death the speaker attributed to anaesthesia.

Mr. MCCONNELL said that this method in practice was quite simple. He had seen a good many of the cases to which Dr. Boyd referred; he was greatly struck by the lack of congestion about the face. One case of malignant glands in the neck in an old, feeble patient was fatal after seventy-two hours, death being due to hypostatic pneumonia, which did not start at once, but twenty-four hours after operation. He had used the actual cautery in the mouth for up to twenty minutes at a time.

Dr. BOYD, in reply, said that secretion of mucus was increased, but not so much as with ordinary ether anaesthesia. The anaesthesia was, in fact, fairly dry, but this was probably due to the use of atropine. If 75 per cent. ether were used, it might be inflammable. Though 65 per cent. solutions gave a deeper anaesthesia, he never used more than 50 per cent., which was much more easily controlled. The danger of the actual cautery should always be borne in mind.

Arthroplasty of the Knee-joint.

Sir W. I DE C. WHEELER showed a case of arthroplasty of the knee-joint, with radiograms taken before and after operation.

The patient, a little girl, had osteo-myelitis six years ago, resulting in a double ankylosis, the left knee being flexed and the right extended. The right, operated on four weeks previously, was in plaster. The left arthroplasty was of four months' standing. Using lateral incisions he had remodelled the femoral and tibial condyles, and had interposed lateral flaps of the soft tissues. The articulating surfaces should be as wide as possible to anticipate lateral instability. The child demonstrated the excellence of the result by flexing and extending the right knee through more than a right angle, and by hopping across the room on the left foot, the left knee being unsupported by apparatus.

Mr. PRINGLE said that he had done a similar operation some years ago, but the result was not nearly so good; the man had a movable joint, but it was painful, and it was necessary to excise it six months later.

Mr. A. K. HENRY showed a case of loose bodies after gunshot wound of the knee-joint.

When he first saw the man, six months previously, there were lumps over the external condyle forming a mass the size of two hazel nuts, which had been diagnosed as exostoses. On examination these were found to be movable, and a skiagram showed that the fragments corresponded to a defect in the external condyle. It was remarkable that these loose bony fragments had remained uninfected. In six months they had diminished considerably in size, and had become more movable.

Early Symptoms of Cancer of the Colon.

Mr. SETON PRINGLE, who read a paper on early symptoms of cancer of the colon, said that patients came, as a rule, too late to operation for good results to be secured, in spite of the fact that the growth remained localized for a long period.

In 70 per cent. of those cases in his series not accompanied by obstruction, the diagnosis was made by discovering a tumour; but in 80 per cent. of the cases where no obstruction was

present, the growth was in the pelvic colon, and was frequently not palpable. In 33 per cent. of his series colostomy for obstruction had preceded resection, and 40 per cent. had recurrence within two years. These figures showed the need for revising the criteria of the disease.

He believed that the presence of blood, mucus, and pus, with an increase in the number of daily evacuations, together with a sensation of dissatisfaction after defaecation, constituted a syndrome characteristic of early colonic stricture associated with ulceration. Since the commonest cause of these conditions was cancer, laparotomy was justified in the presence either of pus, etc., or of the symptom of dissatisfaction. He distrusted negative findings by the *x* ray or sigmoidoscope. "Faecal impaction" was, he believed, rare *per se*, ending usually in colotomy and the discovery of a malignant stricture.

Sir W. I. DE C. WHEELER said that in these cases he took the *x*-ray findings with a grain of salt. Exploratory laparotomy in these cases was a difficult thing to advise, and the advice was not usually well received. The sigmoidoscope might easily miss the growth, going either too high or not high enough to enable it to be seen.

Mr. PEARSON thought the use of *x* rays was very limited; he had had a patient with cancer of the colon who had been told by a careful radiologist that he had not cancer. Examination under an anaesthetic was very useful before doing an exploratory laparotomy.

Mr. SETON PRINGLE, in reply, said that he read his paper because many medical men did not seem to think of cancer in these cases. In a patient who had been treated for nine months for mucous colitis he had diagnosed and found at operation cancer of the colon. Examination under anaesthesia was too seldom practised.

THE NERVOUS SYSTEM AND THE ENDOCRINE GLANDS.

AT a meeting of the London Association of the Medical Women's Federation, held on May 18th, with the President, MRS. E. E. FLEMMING, M.D., in the chair, DR. SIBYL I. WELSH read a paper on the nervous system and the endocrine glands. She said that Hughlings Jackson had described the development of the nervous system in man as taking place at three levels—the vegetative or autonomic, the sensori-motor, and the psychic.

On the psychic level (continued Dr. Welsh) the receptors through which man receives impressions are the sense organs of sight, hearing, taste, and smell, and it is through these that he comes into relation with the external world. By association fibres in the cerebral lobes he gains the power of balancing knowledge with emotion and intuition with instinct, knowledge and intuition tending to be individual as compared with emotion and instinct, which are racial and shared by his kind. At this level he becomes an individual member of a herd. On the sensori-motor level the body has acquired the power of balance and progression through space, coming into contact with externals through the skin receptors of touch, pain, heat, and cold, and acquiring self-control through its proprioreceptive system, whose centres are in the labyrinth, and through the cerebellum, which receives and co-ordinates all the impulses of sense of position and movement. At this level he becomes an individual and is able to move about. On both the psychic and sensori-motor levels the controlling nervous mechanism is a centralized one, and control is conscious as well as subconscious. On the autonomic level centralized control is no longer essential. This level governs the most primitive reactions of nutrition, reproduction, and self-defence; at this point the organism is a mere existence without individuality or sociability. In man this level is represented by the mutually antagonistic sympathetic and para-sympathetic nervous systems, and their working is unconscious. Developmentally, this nervous system is not centralized, and in the lowest vertebrates the place of the sympathetic cells is taken by masses of chromaffin cells. In many these cells are chiefly found in the suprarenal medulla, and are derived developmentally from the same mass of cells that gives rise to the sympathetic ganglion. This shows how an organ which deals with the chemical type of stimulus progresses into one producing the higher type of nervous stimulus, and that, below the level of the most simple type of nervous control, there is a set of systems of chemical control—a set, in fact, of endocrine glands. There is thus a digestive system of chemical control affecting the secreting glands, a reproductive system bringing into functional co-operation the remote sexual glands, and a system influencing growth and development. The active principles of the endocrine glands are comparatively simple and identical for all animals.

Dr. Welsh described the distribution and functions of the two divisions of the sympathetic nervous system, stimulation of the sympathetic producing means of defence, and stimulation of the parasympathetic promoting nutrition. She referred to the treatment of deficiency diseases by gland extracts, and to the increase in exophthalmic goitre since the war. It was suggested that as there was anatomical evidence of a double control, chemical and nervous, of the endocrine glands, there might be a possibility of a double form of treatment, one being the restoration of nervous control by psycho-therapeutic measures.

Reviews.

ROSE AND CARLESS'S MANUAL OF SURGERY.

AN interval of three years has ordinarily been regarded as long enough between editions of modern textbooks, the changes being sufficiently numerous within that period of time to warrant a new issue. The world-shaking events of recent years compelled a lengthening to five years of the intervening period from the ninth to the present, the tenth, edition of Rose and Carless's *Manual of Surgery*.[1]

A considerable amount of new material has been added, consisting mainly of descriptions of methods found valuable in war surgery, the treatment of infected wounds, the mechanical handling of compound fractures of the long bones, and the ingenious reparative operations of plastic surgery. These new sections are thorough and complete and present to the reader a very good survey of all that we have learnt from recent experience, most of it bitter enough. It is with special commendation we note the high esteem in which Mr. CARLESS holds the Thomas splint in its various slight modifications, and those of us who used it for so many cases know that with this splint and a Balkan frame most excellent functional results and easy nursing were the uniform experience. It is strange that only with a European war should the Thomas splint and many of the "orthopaedic" ideas of the Liverpool school reach an almost universal acceptance.

Mr. Carless expresses regret—though we venture to think that no such expression is called for—that the book is necessarily larger, and he expects that possibly some of the newer war-originated material may be dispensed with in future editions. Possibly so, but we hope that the newer generations of students will for many years continue to learn the principles and methods of antisepsis and to appreciate the application of mechanical ingenuity which war surgery has forced upon us. A textbook cannot, of course, be allowed to grow out of manageable proportions, and some things must in time find their way to the scrap-heap; perhaps it would be no great loss if in future editions we found that references to taxis in strangulated hernia and many amputations of the foot and knee, and the present nomenclature of the cancers, had been relegated to the scrap-heap—there is no reason why, for example, "scirrhus" should be preserved, when it only means "hard," and "encephaloid," when it means really "brain-like" and is used to mean "soft." Another milder anachronism is disclosed in a remark on the surgical damage a "hansom cab" may do (p. 1172).

We are satisfied that the new "Rose and Carless" will still preserve its high place in the affections of the student and the practitioner. Its teaching is essentially the surgery of the British school, which is the soundest in the world. Carless travelled far in his war experience and met many men to whom his name and his book stood for all that is best in the memory of hospital and student days at home, and all hearts would open to him. Incidentally we remark that this mingling with the army has perhaps permitted a little more free use of some expressions such as "asking for trouble" (p. 1234). No one will object to more picturesqueness of language and homeliness—even colloquialness—of phrase in textbooks, but the ephemeral language of slang, even of the army sort, may not be generally understood. There are remarkably few errors of proof-reading; two will be found on pages 614 and 616. A commendable feature is that the *x*-ray pictures are printed on art paper and collected at the end.

[1] *Manual of Surgery* (Rose and Carless). For Students and Practitioners. By Albert Carless, C.B.E., M.B., M.S.Lond., F.R.C.S. Tenth edition. University Series. London: Baillière, Tindall, and Cox 1920. (Demy 8vo, pp. xii + 1562; 614 figures, 33 plates (16 coloured). 30s. net.)

RADIOLOGY.

THE second edition of Dr. ALBERT-WEIL'S manual entitled *Éléments de Radiologie*[2] is a comprehensive publication which deals with the whole subject of the uses of *x* rays in diagnosis and treatment. The author is the well-known French radiologist, chief of the staff of the *x*-ray department of the Hôpital Trousseau, and his book is one of the most important written by a French author. The first edition gained the Itard prize of the Académie de Médecine. The present edition, whilst on the same plan as the first, has been brought up to date, most of the chapters having been rewritten, the illustrations increased in number, and a full description of the Coolidge tube added. Of the three sections into which it is divided the first consists of a description of instruments, the second covers the whole ground of *x*-ray diagnosis, and the third is given up to therapeutics. The text is illustrated by 552 reproductions of radiographs and numerous diagrams, which serve to make the author's meaning clear. The radiographs suffer to a certain extent from being reproduced on the same paper as the letterpress, but serve their purpose as demonstrating morbid conditions. The book can be recommended to those who wish to become well acquainted with *x*-ray work as practised by the best French workers.

In his *Aids to Electro-therapeutics*,[3] Mr. J. M. REDDING, F.R.C.S., has added another to the already long list of small books which, under the title of the Students' Aids Series, are designed to assist students in grouping and committing to memory the subjects upon which they are to be examined. Looked at from this point of view, the present volume seems to fulfil its purpose. After a short introductory chapter there follow thirteen others dealing concisely with the various forms of electricity and electrical apparatus used for therapeutic purposes, and amongst other things are included galvanism, faradism, ionization, diathermy, and high frequency. A rather more elaborate chapter then deals with *x* rays, and it is somewhat remarkable what an enormous amount of information, both technical and practical, the author has managed to condense into relatively few words. Nothing of importance appears to have been omitted concerning apparatus and its uses, and the advantages and disadvantages of different pieces of apparatus are well set forth. In concluding this chapter short references are made to all the usual conditions in which *x*-ray treatment is indicated, and the lines on which it should be carried out. Radium therapy is then dealt with rather shortly, and perhaps this chapter might with advantage have been somewhat extended. Finally, after an account of the electro-diagnosis of nerve lesions and myopathies, there is an index of treatment in which diseases are arranged alphabetically, and the indications for their treatment by one or other methods stated. As a concise aid to the memory a book of this kind should be useful to medical students.

Many expert radiographers will find the small monograph by WENDELL, entitled *The Systematic Development of X-ray Plates and Films*,[4] useful for reference. All photographic assistants in *x*-ray departments would be saved endless trouble if they were well acquainted with the fundamental principles of the development of plates here so well, so plainly, and so lucidly set forth. There is practically nothing to criticize unfavourably in the book. It states in plain, easily understood English all the important points in the treatment of an exposed *x*-ray plate in order to obtain the best possible photographic result. Perhaps the author is a little too enthusiastic as to tank development, and a little too severe in his strictures on the more usual method of tray, or visual inspection, development; but as a very old amateur photographer and *x*-ray worker the reviewer has a great deal of sympathy with him, and it is really remarkable how little some of the very best *x*-ray workers know of the technical side of producing the best photographic results. We can strongly recommend this book as eminently practical and brimful of useful information; the principles of development of a negative are admirably portrayed in simple and easily understood language; the reasons for each chemical used in a developer are clearly stated; and finally, the illustrations are well chosen and convincing.

To those interested in the Coolidge tube the translation of H. PILON'S essay on it[5] will be instructive. Its first section deals with the tube itself, describes its construction and the various models, the methods of heating the filament, and the starting and regulation of the tube. The second describes the properties of and the radiations emitted by a Coolidge tube. The concluding part discusses certain criticisms, for the most part groundless, which have from time to time been made concerning the working of these tubes; the author criticizes severely the assertion often made that the Coolidge tube is dangerous. Admitting that it is dangerous in the sense of the power it possesses, he maintains that it permits of very simple methods of protection which not only allow of complete control of direct radiations, but also eliminate all secondary radiations, and that therefore it is really a very safe tube. The opinion is expressed that in the near future every works laboratory will possess a radio-metallographic installation. Amongst other interesting illustrations there is one of a radiograph in which the shadows of lead figures are shown through a steel gauge 45 mm. in thickness.

GYNAECOLOGY.

A SECOND edition of *A Guide to Gynaecology in General Practice*,[6] by Mr. COMYNS BERKELEY and Mr. VICTOR BONNEY, was only to be expected, for, as we pointed out on its first appearance, it has many features which make it a book of unique value to the section of the profession for which it is designed. The whole text, it is said, has been revised, and in regard to its substance this is no doubt the case. There still remain, however, several slips which ought not to have escaped the attention either of the authors or of the printer's reader. Amongst these are one or two to which, if our recollection is correct, we drew attention in our notice of the first edition. The very valuable section on the medico-legal aspects of gynaecology has undergone a special revision with the assistance of Mr. C. F. Lowenthal, and in particular the discussion of the attitude of the practitioner in regard to a case of criminal abortion is treated in such a way as to make it the most valuable and practical guidance upon this subject known to us. New sections dealing with *x* rays and radium have been added, which provide the practitioner with all the pros and cons to be considered by him and to be placed before his patient in regard to the treatment of fibroids and cancer by these means. Unfortunately the experience of the authors does not make them enthusiastic over the curative powers of these rays, but the discussion is very fair and well balanced. The new edition maintains the admirable specificity of the book. It is written throughout with the one idea of helping the general practitioner in his gynaecological cases, and every other aspect of the subject is rigidly and wisely excluded.

The call for a second edition of EDEN and LOCKYER'S *Gynaecology*[7] within four years of its first appearance is satisfactory evidence that it has met with the approval which we predicted for it. Some thirty pages appear to have been added, containing both new matter and fresh illustrations, and including a brief appendix on the transfusion of blood by Mr. Rendle Short. Whether this last is really in place in a textbook of special surgery is at least debatable. We are glad to note that the authors have discarded the use of the term capsular haemorrhage, to which we objected in the first edition, in favour of the simpler term tubal haemorrhage. Would that they had also seen their way to a more euphonious classification of

[2] *Éléments de Radiologie.* By Dr. E. Albert-Weil. Paris: Félix Alcan. 1920. (Roy. 8vo, pp. 883; 552 figures. (40 francs net.)

[3] *Aids to Electro-therapeutics.* By J. Magnus Redding, F.R.C.S. London: Baillière, Tindall, and Cox. 1920. (Fcap. 8vo, pp. 204; 16 figures. 5s. net.)

[4] *The Systematic Development of X-ray Plates and Films.* By Lehman Wendell, B.S., D.D.S., Chief of the Photographic Work, University of Minnesota. London: Henry Kimpton. 1920. (Med. 8vo, pp. 78; 33 figures. 12s. net.)

[5] *The Coolidge Tube: Its Scientific Applications, Medical and Industrial.* By H. Pilon. Authorized translation. London: Baillière, Tindall, and Cox. 1920. (Cr. 8vo, pp. 104; 59 figures. 7s. 6d. net.)

[6] *A Guide to Gynaecology in General Practice.* By Comyns Berkeley, M.A., M.D., M.C., F.R.C.P., and Victor Bonney, M.S., M.D., B.Sc., F.R.C.S.Eng. London: Henry Frowde, and Hodder and Stoughton. 1919. (Cr. 4to, pp. xxiii + 467; 168 figures. 31s. 6d. net.)

[7] *Gynaecology for Students and Practitioners.* By Thomas Watts Eden, M.D., F.R.C.S.Edin., F.R.C.P., and Cuthbert Lockyer, M.D., B.S., F.R.C.S., F.R.C.P. London: J. and A. Churchill. 1920. (Roy. 8vo, pp. xvi + 928; 513 figures, 24 coloured plates. 38s. net.)

endometritis! The reader turns with interest to that great and ever-pressing problem of gynaecology, the treatment of cervical carcinoma. The writers are very guarded in their statements as to the prospects of radium and *x* rays either as direct curative agents or as adjuvants to operation, and are satisfied that as yet the only hope of cure lies in the free excision of the whole diseased area. For this purpose the abdominal route, it is said, is still the most promising; in the first place it enables a larger number of cases to be included as operable than does the vaginal route, even although the primary mortality still hovers about 20 per cent. Wertheim was able to claim 41 per cent. of cures on a five years basis, while for the vaginal operation De Ott claims from 34 to 37 per cent. on the same basis. Fortunately the condition of the patient who has had her uterus removed and subsequently becomes the victim of recurrence of carcinoma is, as regards local symptoms, much less distressing than that of the woman whose case is inoperable or not operated upon. In every way the new edition maintains the high standard of its predecessor, and it will continue to rank as probably the most satisfactory all-round textbook of moderate size on the subject published in this country.

NOTES ON BOOKS.

IN his book on *Psychology from the Standpoint of a Behaviorist*[8] Professor WATSON describes psychology as a science of behaviour. Its eleven chapters contain a clear account of the methods, mechanisms, and results of psychological study approached from the author's special point of view. Beyond all things, Professor Watson is informal, averse to abstraction; his book should prove attractive to elementary students of the subject.

In the fourth edition of *The Sexual Disabilities of Man*,[9] by Mr. ARTHUR COOPER, many changes have been effected. The text has been brought up to date, and two new chapters on hygiene and continence have been added. This little book has undoubtedly helped to fill a gap in the knowledge of the average student of medicine, and the new chapters make it more complete. The question of sexual continence has been much debated in recent months, and the author's examination of the subject shows restraint and discrimination.

In *Half-past Twelve*,[10] Mr. G. W. GOUGH puts the outlines of practical economics before the reader in the form of six-and-twenty short chapters or "dinner hour studies for the odd half-hours." This short and well written introduction to political economy may be warmly recommended to readers of every class. Mr. Gough's point of view is strictly non-political and his exposition lucidity itself.

In the May number of the *Fortnightly Review* Mr. Edward Clodd asserts that "the extent to which occultism has spread, and is spreading in these latter days, will, in vulgar phrase, be an 'eye-opener' to many who have dismissed this matter as the passing freak of a handful of cranks." It is a like opinion, no doubt, that has induced Surgeon Captain C. MARSH BEADNELL, R.N., to publish a pamphlet entitled *The Reality or Unreality of Spiritualistic Phenomena*.[11] To deal with all the divagations of so-called spiritualists—although, indeed, they better deserve the term "materialists"—would be a very lengthy business, and the author has confined himself to a criticism of certain writings of Mr. W. J. Crawford, D.Sc., who seems to have been a willing victim and to be ready to find explanations for every dubious manifestation. The value of the pamphlet lies in the detailed examination of Dr. Crawford's statements, and this cannot be shown by quotation. It should be read as a whole.

The fourth edition of Professor BIRK'S *Säuglingskrankheiten*[12] provides students and practitioners of medicine with a practical account of the signs, symptoms, diagnosis, and treatment of the diseases of infancy as met with and looked after in Germany. The author as a pupil of Czerny, has much to say about spasmophilia; in spasm of the pylorus he mentions operative treatment as the *ultima ratio*. The book is full and clearly written, not unduly weighted on the scientific side.

[8] *Psychology from the Standpoint of a Behaviorist.* By John B. Watson, Professor of Psychology, the Johns Hopkins University. Philadelphia and London: J. B. Lippincott Company. 1920. (Demy 8vo, pp. xi + 429; 66 figures. 10s. 6d. net.)

[9] *The Sexual Disabilities of Man and their Treatment and Prevention.* By Arthur Cooper. Fourth Edition, revised and enlarged. London: H. K. Lewis and Co., Ltd. 1920. (Cr. 8vo, pp. 274, 2 plates; 7s. 6d. net.)

[10] *Half-past Twelve.* Dinner Hour Studies for the Odd Half-hours. By George W. Gough. London: Sells, Ltd., and Methuen and Co. New York: G. P. Putnam's Sons. 1920. (Demy 8vo, pp. 77. 1s.)

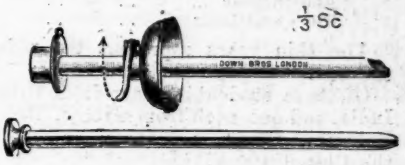
[11] London: Watts and Co. 1s. net.

[12] *Säuglingskrankheiten.* By Dr. Walter Birk, Professor der Kinderheilkunde Vorstand der Universitäts-Kinderklinik zu Tübingen. Fourth edition Bonn: A. Marcus and E. Webers Verlag. 1920. (Med. 8vo, pp. 276; 25 figures. M 15, bound M.18.60.)

APPLIANCES AND PREPARATIONS.

A Urethroscopic Tube.

MR. NORMAN LUMB (London, W.) writes: In the course of urethroscopic work I have often felt the need, both in treatment and demonstration, for a device which would retain a particular field in view. The movable-cup tube illustrated here answers the purpose. The tube is inserted in the ordinary way, and, when the affected area is in the field, the cup is moved down to the glans and locked in position by means of the short lever. The weight of the urethroscope is thus balanced, and no difficulty is experienced in keeping it steady. As the tube is withdrawn during the examination the cup may be allowed to remain in contact with the glans, when it can be locked at any stage by simply pressing on the lever. The cups are made in the usual sizes. The device is especially useful when used in conjunction with Wyndham Powell's new cauterizing tube (BRITISH MEDICAL JOURNAL, August 9th, 1919), in the incision of peri-urethral abscesses, or for endoscopic treatment of the anterior or posterior urethra. The instrument is made by Messrs. Down Bros.



THE MEDICAL DEFENCE UNION.

AT a special general meeting of the Medical Defence Union, held at the house of the Medical Society of London on May 20th, the following resolutions were carried *nem. con.*:

1. That on and after January 1st, 1921, the annual subscription to the Medical Defence Union shall be £1, which payment shall provide each member with indemnity against damages and costs awarded against him, to the extent of £2,500, in any case which is undertaken on behalf of the member by the Medical Defence Union, and that a member elected on or after July 1st in any year shall pay half the current subscription for that year.
2. That the fee for life membership shall remain at £25, which payment shall include all the benefits of the indemnity mentioned in the foregoing resolution, on and after January 1st, 1921. Life members who have compounded for a less sum and are still in practice shall be asked to pay a subscription to the Medical Defence Union of 5s. per annum, to cover the indemnity before mentioned, if they wish to secure the benefits thereof.
3. That newly registered medical practitioners shall be admitted to membership of the Medical Defence Union, on and after January 1st, 1921, without payment of an entrance fee, provided that they join the Medical Defence Union within one year of the date of their registration.

AT a general meeting of the United Services Medical Society held at the Royal Army Medical College on May 28th, 1920, it was resolved to amalgamate with the War Section of the Royal Society of Medicine on the condition that the late members of former society are accepted without entrance fee to the War Section, but subject to an annual fee of one guinea. The United Services Medical Society decided to hand over to the Royal Society of Medicine the balance of cash as shown on January 1st, 1915, the remainder to be divided amongst the subscribers since that date. To permit of this adjustment it is requested that those subscribers will forward their present addresses to the Secretary, Major E. M. Middleton, at the College.

THE following appointments to the Order of the British Empire are announced in recognition of war work:—*K.B.E.*: Dr. John O'Conor, head of British Hospital, Buenos Aires. *O.B.E.*: Mrs. C. M. Astley Maer, civil surgeon, attached R.A.M.C. *M.B.E.*: Dr. H. A. Macdonald, medical officer, Alverstoke Auxiliary Hospital.

IN Java last March there were 936 cases of plague, all of them, it is significantly added, fatal.

EIGHTY-EIGHTH ANNUAL MEETING

OF THE

British Medical Association,

CAMBRIDGE, 1920.

THE PRESENT MEDICAL SCHOOL

SIR CLIFFORD ALLBUTT tells us that when he was an undergraduate, about 1855, the number of medical students at Cambridge was only 6; to-day the number is about 500. The last official figures (Michaelmas term, 1919) were as follows

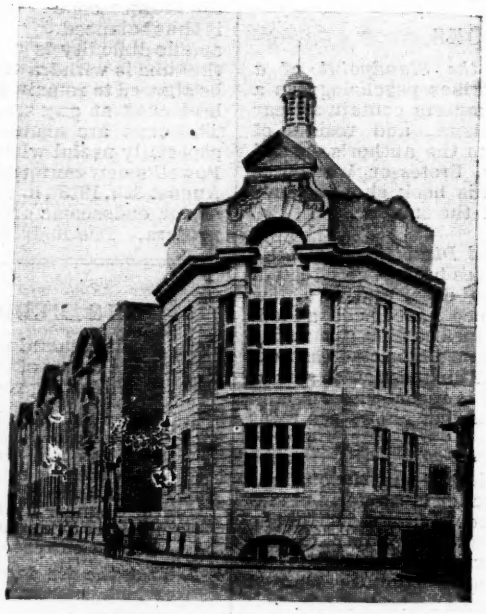
First year	186
Second year	209
Third year	54
Fourth year	13
Fifth and later	26

The thin years represent the reduced entries during the war.

Of these students, 30 are from British Colonies, 6 from India, and one each from Greece, Rumania, China. Persia. Sumatra, Egypt, Argentina, and the United States.

The laboratories and museums of nearly all the natural science departments of the University are conveniently near together and centrally situated. They occupy sites on both sides of Pembroke Street and its continuation as Downing Street. The site on the north side of these streets was formerly the Botanic Garden presented to the University by Richard Walker, D.D., in 1760, and some centuries earlier had been occupied by the Augustinian Friary. The site on the south side of the same streets was purchased by the University from Downing College.

The new building in which the departments of medicine and surgery are housed occupies nearly half the frontage of the Botanic Garden site, the remainder of the frontage being occupied by the chemical laboratory. Behind these are the buildings of the departments of zoology, human anatomy, biochemistry, engineering (mechanical and electrical), mineralogy, and physics. Behind these again are the Arts School and the examination rooms.



MEDICAL SCHOOL: HUMPHRY MUSEUM AND SOUTH FRONT.

The street front of the Downing College site is occupied by the Museum of Archaeology and Ethnology, the Law School, and the Geological Museum. Behind these are the laboratories of the botanical, agricultural, physiological, psychological, and forestry departments.

Such a group of buildings has provided a great opportunity for the architects of the last sixty years, but it cannot be said that they have made the best use of it. Some of the buildings are plain, some handsome, but they do not show that relation between form and function which characterized mediaeval buildings. They present a mixture of the pretentious ornament of city offices, the plainness of a factory or warehouse, and the picturesqueness of a seventeenth century château, but not much suggestion of their functions as laboratories and museums. Above all, they have no local character—no relationship, either in detail or in material, with the Cambridge buildings of the olden time, so natural and so pleasing. Perhaps the most appropriate of the new buildings is the Botanical Laboratory, whose architectural features are a fair expression of its function, meaningless ornament being almost—would that it were quite—dispensed with.

The Cavendish Physical Laboratory, presented in 1874 by the Duke of Devonshire, Chancellor of the University, has a moderately successful exterior in which Tudor details are used. Its interior has the advantage of unplastered brick walls, which are more pleasing in appearance than plaster, and are at the same time better adapted for wear and tear. The internal arrangements of these science buildings are generally more commendable than the external, the Chemical Laboratory being notable in this respect, but some of the earlier buildings have been so often altered since they were first built that their internal topography is almost labyrinthine.

It should be understood that the object of the Cambridge science schools is research and instruction—not display. The museums are not public exhibitions; the valuable collections are distributed in a number of buildings of moderate size, and great quantities of specimens are stored in cupboards and drawers. Among the best displayed collections are those of Zoology, Pathological Anatomy, and Geology. When the new Medical Buildings were erected, nearly twenty years ago, a special wing called "the Humphry Museum" was built to receive the Pathological Anatomy collection; this building stands partly on the site of the former Rotunda, than which it is more commodious, if hardly less ugly. The most finely displayed of all the collections is the Geological, occupying a sumptuous building which masquerades externally as a seventeenth-century German "Schloss." In the medical and surgical building are laboratories for Pathology, Pharmacology, Public Health, and Medical Biology, in addition to the rooms used by the Professors of Medicine and Surgery.

The most recent and one of the best equipped laboratories is the Physiological, for which the University is indebted to the munificence of the Worshipful Company of Drapers. Forming an annexe to this is the Psychological laboratory, presented by the family of Dr. C. S. Myers.

Addenbrooke's Hospital is very pleasantly situated in Trumpington Street, a residential neighbourhood. Since its first building in 1766, it has been frequently enlarged. As remodelled by Sir M. Digby Wyatt in 1864–5, it was a building of very appropriate design, and with its spacious lawn and fine trees it gave the impression of a very comfortable home for the sick and suffering. But recent additions to the building, especially a shapeless out-patient department in the foreground, have stultified Wyatt's design and made an *ensemble* of quite ingenious ugliness.

The hospital has 192 beds for ordinary cases, also isolation wards. The out-patient building contains ophthalmic and other special departments, and an instalment of *x*-ray and other electric apparatus. The pathological wing contains, beside the morbid anatomy department, a fully equipped clinical laboratory.

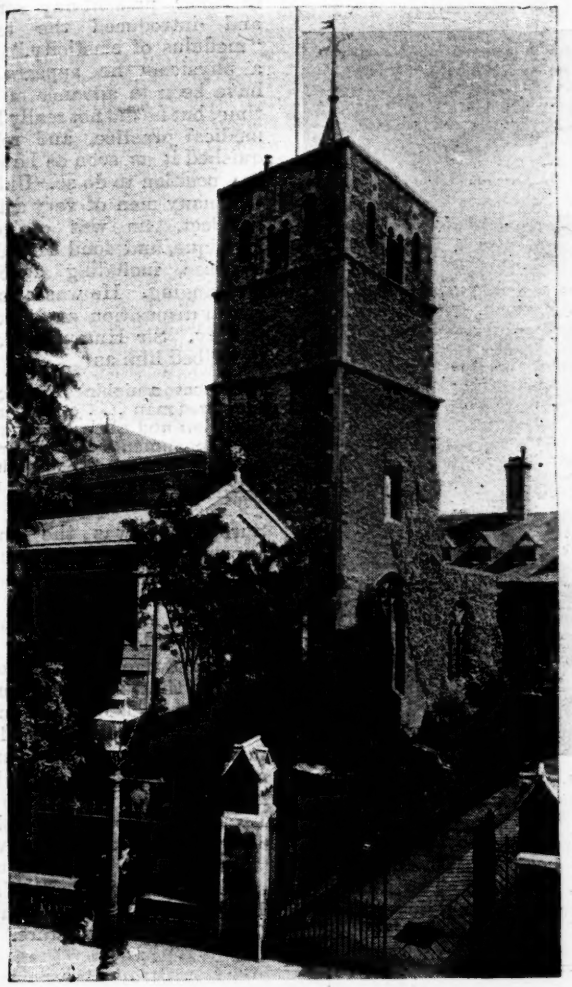
Attendance at this hospital is recognized by all licensing bodies, and it is an excellent place for the initiation of students in clinical work.

About two miles south of Cambridge, on the Hills Road, is a small research hospital for the systematic study of disease. It is situated on high ground, with a good garden and a pleasing view of the Gog-Magog Hills, and patients whose maladies require special clinical investigation find the hospital a very comfortable place for a sojourn. It has a well-equipped clinical laboratory, including a complete *x*-ray installation. Visitors to Cambridge who go to the golf links must pass this hospital, and they would do well to halt for a few minutes to inspect it.

The Botanic Garden, on the Trumpington Road, south of the town, replaces the Walker Botanic Garden. It was laid out in 1846 and following years, Walker's site being at the same time appropriated for the building of science museums and laboratories. The present garden covers

* Previous articles in this series of descriptive and historical notes on the University and town of Cambridge have appeared in the issues of January 3rd, January 24th, March 13th, April 10th, and May 8th, 1920.

20 acres, and a further area of 17 acres is available for future enlargement. The grounds are laid out in various ways, with aquatic and marsh plants, rock plants, xerophytes, systematic groups, etc. In addition there are extensive modern hot and cool houses, a laboratory, a library, and a reading room. Some of the landscape



SAXON TOWER, ST. BENET'S CHURCH.

effects are good, and the garden forms a pleasant place for intellectual recreation.

SOME EMINENT CAMBRIDGE SCIENTISTS.

It has been said that Oxford has produced England's great movements, and Cambridge her great men. The truth of the latter proposition is evident when we consider that Cambridge has produced Milton, Wordsworth, Byron, and Tennyson, also Harvey, Newton, Thomas Young, and Darwin. These are only the most outstanding instances; other eminent Cambridge men are numerous enough; our readers will think of many of them, especially of the great physicists, Cavendish, Stokes, Kelvin, Clerk Maxwell, and Rayleigh. Francis Bacon must be referred to as holding a peculiar position. Primarily a literary man, he acquired a reputation as a natural philosopher by studying and expounding the writings of his namesake Roger Bacon, who was an Oxonian.

The scientists who took part in the development of the school of science and medicine in Cambridge have been already mentioned in these articles—such as Nigel de Thornton, Caius, Glisson, Ray, Newton, Hales, Addenbrooke, Heberden, Harwood, Clark, George Paget, and Humphry. Besides these there were several who were educated at Cambridge, but pursued their life-work elsewhere; the chief of these were as follows, but it is to be noted that some of them belonged to Oxford as well as Cambridge.[1]

[1] For the particulars which we quote we are largely indebted to the *Dictionary of National Biography*, to which the reader is recommended for further information.

William Gilbert, 1540–1603. Born at Colchester. Fellow of St. John's College 1561, M.D. 1569, F.R.C.P. 1573. A pioneer in the study of magnetism; the first to describe the earth as a magnet, in a work entitled *De Magnete, Magneticisque Corporibus, et de Magno Magnete Tellure, Physiologia Nova.*

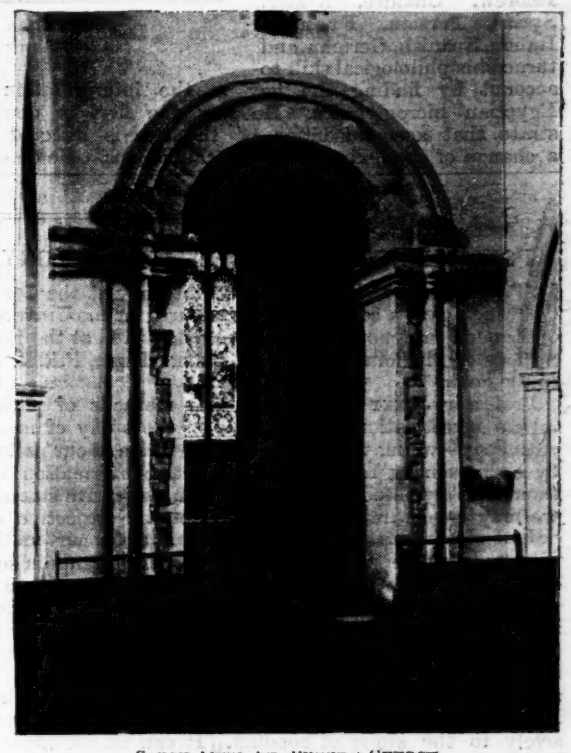
William Harvey, 1578–1657. Born at Folkestone. Entered Gonville and Caius College 1593. Proceeded to Padua in 1598, where he graduated M.D. in 1602. Returning to England, he was admitted M.D. by incorporation at Cambridge, and settled in London, where his great researches in anatomy and physiology were carried out. He always retained an affection for Gonville and Caius College, and bequeathed to it the house of his birth at Folkestone.

Thomas Wharton, 1614–73. Entered Pembroke College in 1638; afterwards moved to Oxford. M.D.Oxon. 1647, M.D. Cambridge 1652 by incorporation, F.R.C.P. 1650. Best known for his original work on glands, entitled *Adenographia, sive Glandularum totius Corporis Descriptio*, in which he described for the first time the duct of the submaxillary gland, since named after him. "He did not trust much to theory but a great deal to dissection and experiment."[2]

George Joyliffe, 1621–58. Born at East Stower, Dorset. Entered Wadham College, Oxford, in 1637. Came to Clare College, Cambridge, as fellow commoner in 1650. M.D. Cambridge 1652. Discovered the lymphatic system and described the discovery to Glisson in 1652, but did not publish it. A year or two later he was forestalled in publication by Rudbeck and Bartholinus, who had made the discovery independently.

Clopton Havers. Born between 1650 and 1660 died 1702. Entered St. Catharine's College, but took no degree. M.D. Utrecht 1685. F.R.S. 1686. Famous for his work on the bones, entitled *Osteologia Nova*, in which he gave the first description of the vascular canals, which are now known by his name.

John Woodward, 1665–1728. Entered Pembroke College 1695. Admitted M.D. same year. F.R.C.P. 1702–3. One of the founders of the science of geology. Bequeathed his



SAXON ARCH, ST. BENET'S CHURCH.

collection of specimens to the University, and founded the Professorship of Geology. Was also a botanist, and carried out experimental researches on plant physiology.

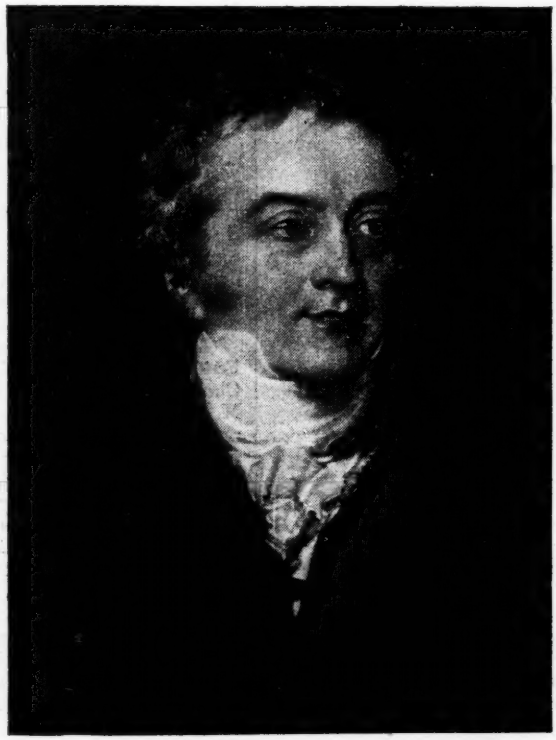
James Jurin, 1684–1750. Born in London. Entered Trinity College 1702, became Fellow 1706, M.D. 1716, F.R.C.P. 1719, Pres. R.C.P. 1750, F.R.S. 1717–18, Sec. R.S.

[2] *Dictionary of National Biography.*

1721. Pupil of Newton and advocate of his theories. Published researches on the ascent and suspension of water in capillary tubes, the motion of running water, the force of bodies in motion, the specific gravity of human blood, and the power of the heart.

William Hyde Wollaston, 1766–1828. Born at East Dereham, Norfolk. Entered Caius College 1782, M.D. 1793, F.R.C.P. 1795. Relinquished medical practice in favour of experimental science. "Published 56 papers on pathology, physiology, chemistry, optics, mineralogy, crystallography, astronomy, electricity, mechanics, and botany; and almost every paper marks a distinct advance in the particular science concerned."[1]

Thomas Young, 1773–1829. Born at Milverton, Somerset. Studied medicine first in London, then at Göttingen. M.D. Göttingen 1796. Entered Emmanuel College, Cambridge, as fellow commoner, 1797. M.D. Cambridge 1808, F.R.C.P. 1809. Found Cambridge life congenial and formed many friendships here, as among scientific and artistic men elsewhere.



THOMAS YOUNG, M.D., F.R.S.
(After the portrait by Sir Thomas Lawrence.)

Thomas Young was not only a scientist of the first rank, but also an exceptionally accomplished linguist, a skilled musician, and a connoisseur of other fine arts. He was proficient in the following languages: Latin, Greek, Hebrew, Chaldee, Arabic, Syriac, Persian, French, Italian, Spanish, German, and turned his philological skill to account by finding the key to the interpretation of Egyptian hieroglyphics. He was the first to demonstrate that accommodation of the eye is effected by a change of convexity of the crystalline lens. He demonstrated the phenomena of interference of vibrations in sound and light, and thereby established the wave theory of light. He propounded the three-primary-sensations theory of colour vision. He investigated the hydraulics of the circulation, and the theory of tides. He was the first to use the terms "energy" and "labour expended" in their present-day sense, and introduced the term "modulus of elasticity." As a physician he appears to have been in advance of his time, but he did not really like medical practice, and relinquished it as soon as he was in a position to do so. Unlike too many men of very active intellect, he was of good physique, and fond of bodily exercise, including dancing and singing. He was also of genial disposition and fond of society. Sir Humphry Davy described him as

> "a most amiable and good-tempered man . . . of universal erudition and almost universal accomplishments . . . he knew so much that it was difficult to say what he did not know."

Surely his was the most expansive intellect of which we have record. The nearest approach was that of Leonardo da Vinci, which however did not cover so wide a range. It is noteworthy that Young's county, Somerset, also produced two other men who had immense influence on science and philosophy, namely, Roger Bacon and John Locke; while Christopher Wren, another man of wonderfully expansive intellect, was born in Wiltshire, at East Knoyle, near the Somerset boundary. The other great intellect comparable with Wren and Young, less expansive but more profound, namely Isaac Newton, was produced far away in Lincolnshire.

[1] *Dictionary of National Biography.*

PSYCHOLOGY AND MENTAL PATHOLOGY.

M. PIERRE JANET, Professor of Psychology at the Collège de France, gave a course of three lectures for the University of London last month. They were delivered at the Royal Society of Medicine, when Dr. HENRY HEAD, F.R.S., was in the chair.

Professor JANET stated that two methods of psychological investigation are available in the study of mental pathology—we may study the mental states of our patients by endeavouring to obtain introspective information from them and by inference from our own subjective states, or we may concentrate our attention on the objective disorders of conduct. When we adopt the former method the study of the psychopathic individual presents in some degree the same difficulties that we encounter when we seek to understand the psychology of animals by inference from our own self-consciousness. Animal psychology has only made progress since psychologists have abandoned any attempt to inquire into the subjective states of the animal, and have concentrated their attention on behaviour. Medical psychology should likewise devote itself exclusively to the study of conduct. It can as yet hope for little aid from physiological psychology. The bodily reactions accompanying emotional states have been to some extent described, but they cannot as yet be interpreted in terms of conscious sensation.

The key to the scientific study of conduct is found in the fact that all psychical processes are movements. Movement may be exteriorized by action and speech, but thought is also movement or internal speech. The descriptive psychology of medicine is therefore not qualitative but quantitative. It endeavours to estimate the dynamic value of the response of the organism to psychical stimuli and the adequacy of the response or its adaptation to its environment. The evaluation of a psychical response in term of energy may be justified by the foregoing conception of thought as movement. The same idea is implicit in the language of daily life when a character is described as weak or strong. It is possible in dynamic phraseology to characterize a psychical response by its intensity, its duration, and its latency. The principle of the economy of psychical energy is the fundamental law governing all mental activity. Speech is an economy of energy replacing gesture. Thought is internal speech replacing actual experimental action, and as speech involves an expenditure of energy. The modes of psychical activity may be arranged in an ascending scale—at the bottom stands the purely animal reflex, at the apex the altruism of the moral man and the creative power of the artist.

Belief can be regarded as a potential promise of movement; thus when we express our belief in certain conditions we assert that the conditions are such that if we act at all it will be in a certain manner. Our test of the truth of a belief is the coincidence of the movement predicted by our belief with that called forth by the actual conditions. We thus arrive at reality by a process of trial and error.

Reasoning in terms of energy is a process of auto-discussion manifested by the movements which constitute our internal language or thought. Memory again is a process of narration or the movements of internal speech. Consciousness is social in origin and appears when the social relations of the self to the external world exercise an influence on movements which were originally called forth as responses to stimuli affecting the self alone. A reserve

store of potential energy is attached to the higher directive planes of psychical activity and is mobilized as an inhibitory force when the response of the lower centres would be inimical to higher ethical or rational considerations.

If mind be regarded thus from a dynamic standpoint, the neuroses manifest themselves as disturbances of the law of economy of psychical energy. Such disturbances may take the form of the excessive mobilization of the lower planes of psychical energy to meet a strain the nature of which is not appreciated by the higher intellectual faculties, and this state of things constitutes the anxiety neurosis. The higher faculties may fail to inhibit the irrational output of the lower, as in mania; they may fail to arouse an adequate response, as in dementia praecox; or they may themselves become atrophied, leaving the psychical dynamic system free to act at a lower plane, as in the various forms of dementia. Minor disturbances of the economy of dynamic force are of daily occurrence in the mental life of the normal individual. When the highest faculties alone are affected the situation is one for ethical and possibly juridical treatment; when the change is pronounced and affects the lower faculties in the intellectual hierarchy the cases come before the alienist. In each case the problem is the same—as far as possible to restore the balance of the economy of psychical energy.

VITAL STATISTICS OF ENGLAND AND WALES.

THE annual report of the Registrar-General for England and Wales, for the year 1918, has been issued, with the usual detailed review of the vital statistics for the year by Dr. T. H. C. Stevenson, Superintendent of Statistics. The salient features of the year were that the marriage rate had recovered from the depression of the previous year, and was about the same as the rate before the war. The birth rate (17.7) was the lowest on record, being 0.1 below that for 1917, and 6.1 below that for 1914. The death rate was 17.6, being 3.2 above the rate in the preceding year. Infant mortality was 97 per 1,000 births, which was 1 per 1,000 above the rate in the preceding year, but 10 per 1,000 below the average of the ten years 1908–1917.

POPULATION.

The total civilian population was estimated by addition to the census population of 1911 of births, migrations, and discharges from the services, and by deduction from that population of deaths, emigrations, and men known to have joined the services. In this way totals of 13,777,100 civilian males and 19,697,600 females were reached. The several age groups, as in the two previous years, were estimated, as far as possible, by calculating civilian survivors in each group from the estimated number of those aged 1 year younger in 1917; in the absence of a record of numbers enlisted from each age group, it was necessary in this mode of estimation to treat males of 15 to 45 as a single group. The civilian populations of separate localities were derived from two independent sources—the National Register count of the second quarter of 1918 and the reports made under the food rationing scheme. Neither of these enumerations is wholly satisfactory from a statistical point of view, but reliance was chiefly placed for 1918 on the food reports, which are believed to have improved with successive issues of coupons.

TUBERCULOSIS.

The deaths assigned to tuberculous infections of all kinds in 1918 numbered 58,073 (31,027 males and 27,046 females), or 2,139 more than in the previous year. Of the deaths 1,369 occurred among non-civilians. The mortality in the civilian population was equal to 1,694 per million, which was in excess of the mortality recorded for any year since 1904. Dr. Stevenson, however, thinks that the position is less unfavourable than these figures would suggest, the increase in mortality being probably attributable to the epidemic of influenza. In the first two quarters of 1918 the tubercle rate was 8 and 9 per cent. respectively below that for the corresponding quarters in 1917; the third quarter of 1918, in which the first influenza epidemic occurred, brought an increase of 8 per cent., and the fourth, in which the main outbreak took place, of no less than 31 per cent. The conclusion is held to be confirmed by the fact that in 1918 the seasonal occurrence differed from that of the seven preceding years, inasmuch as there were few deaths in the first and second quarters, and many in the third and fourth. Dr. Stevenson considers that the progress of tubercle mortality during 1918 can only be judged from its behaviour in the first six months, and that owing to the absence of males in the fighting services the conclusions must be based on the female sex alone. Judged in this way he thinks that the record of 1918 shows a considerable improvement upon 1917, but compares disadvantageously with that of each of the six preceding years. He also states that the increase in 1918 was limited to phthisis, other forms of tubercle showing a slight reduction, even during the quarter of the great epidemic wave of influenza. Dr. Stevenson considers that the explanation of the facts he has accumulated is that the increase of tubercle mortality was due to deaths from influenza amongst the population suffering from pulmonary tuberculosis, but that influenza did not bring about any corresponding increase of mortality in the population suffering from non-pulmonary tuberculosis. The serious increase in tuberculosis was limited to later childhood and early adult life. There was a decline in the mortality in the first two years of life, but after that the rate was higher at every age up to 45–55. The decline in tubercle in the first two years is to be noted both in respect of tuberculous meningitis and tubercle of the peritoneum and intestines.

Attention is again drawn to the high mortality from tubercle in lunatic asylums; in 1918 the deaths numbered 5,605, as against 4,189 in 1917, and an average of just over 1,800 in the three years 1912–14. The increase occurred in spite of a decrease in the number of inmates of lunatic asylums. As the total increase in tubercle deaths over 1912–14, when mortality from this cause reached its lowest point, was in 1918 about 8,000, it follows, Dr. Stevenson observes, that nearly half of the total increase has occurred among this small section of the population, consisting of just under 100,000 persons. He does not think that the explanations offered by the Board of Control—inferior quantity and quality of food, and overcrowding—suffice to explain the great increase in deaths from tuberculosis in asylums. On the other hand, the fact that the increase was considerably greater among male inmates than female, is held to support the view that deficiencies in the staff may have had something to do with the increased prevalence of the disease.

CLINICAL UNITS IN MEDICAL SCHOOLS.

THE University Grants Committee has issued the following memorandum, dated April, 1920:

1. The case for the establishment of Clinical Units in Medical Schools of University standard has its origin some distance back in the past. The origin is twofold—namely, the advance of medicine itself and the evolution of the form of medical education. Medicine itself was of course revolutionized in Western Europe first by the renaissance and the revival of learning, and then in our own times by the advance of biology in the middle of last century, and the discovery of the etiology of infective disease in the last half of the century. These things gave a new content to medicine and formed the basis of profound changes in the science and art of medicine. Then in the second place there has been an evolution in the education of the medical man. A century ago he became a practitioner by apprenticeship; this was followed in due course by what may be called the hospital system—in other words, an application of the apprenticeship system on a large scale in the wards of a hospital; and lastly, there came the more systematic education of the medical student in the preliminary sciences and the intermediate subjects before he was trained on the clinical side. It is important to recognize that the Clinical Unit, in principle and philosophy, is not a sudden offshoot or "outcrop," but a further stage in a long process of evolution.

2. The relationship of the State to this evolution began with various Medical Acts for Registration, Qualification, etc., the formation of the General Medical Council, and more recently the subsidizing of medical education by the

Government. In 1912 Mr. Abraham Flexner's Report on "Medical Education in Europe" was published, and *inter alia* it advocated a development of medical teaching by the formation of Clinical Units. In 1913 the Report of the Royal Commission on University Education in London summarized the whole question as it affected London and crystallized further the case for the formation of Clinical Units there. Finally, in 1918, the President of the Board of Education called for a report from Sir George Newman, in his capacity as Medical Assessor to the Board, on the general working of the grant aid which had been given by the Board in aid of medical schools in England and Wales during the previous ten years.[1] In this last mentioned document the case for the establishment of clinical units is discussed at length.

3. Confining attention for a moment to the virtues and defects of the British system of Clinical teaching we may say briefly that it is a system of applied apprenticeship by means of clerking and dressing, which has at least four great advantages:

(i) The student himself became an observer and a practitioner.
(ii) A close personal relationship was established between the student and patient.
(iii) The art of medicine was taught by practice.
(iv) The student was, in fact, holding a responsible office and cultivating his sense of responsibility.

These four points have proved invaluable and have resulted in producing a good standard of practitioner, perhaps indeed the best in the world. But there are disadvantages, and three may be named:

(i) The student's work tends to become empirical and not sufficiently inspired by the science of medicine.
(ii) The student is in the main brought into association with the end-results of disease, and is insufficiently equipped to deal with disease at its beginnings.
(iii) The instruction in his clinical work tends to become discontinuous and unsystematic; his studies in biology and chemistry, in anatomy, physiology, and pathology, are systematized and organized on a scientific basis; his clinical instruction is, on the contrary, in a large degree unorganized.

4. It will be admitted that while these virtues are great the defects are serious, and their seriousness becomes the more grave in view of the large and increasing responsibilities placed upon the practitioner by the advance of medicine, by the social requirements of the time, and by the new duties imposed upon him by the State. There arises, therefore, a demand for substantial reform—though not revolution—in the system of clinical teaching at the Universities. The situation, though existent in all medical schools, is particularly acute in the metropolis. If in London there were a unified University—as, for example, in Edinburgh—the position would be the same as in other University centres which have had for many years the germ, and indeed almost the essentials, of Clinical Units.

5. The conclusion seems, then, to be this:

(i) That a University Medical Education requires that the latest advances in sciences which affect medicine, chemistry and physics, anatomy and physiology, pathology and pharmacology, should be continually brought into the teaching of the clinical subjects and applied to the observation and treatment of disease.
(ii) That in order that education may be of this scientific standard, and that students may come into direct contact with knowledge at its growing point, there is needed a system of instruction by teachers who are actively engaged in scientific research.
(iii) That such teachers must be provided with proper equipment, adequate staff, and sufficient time if their work is to be comparable with the best scientific and practical teaching of, say, the Professor of Physiology.

The system of Clinical Units is designed to secure these ends.

6. The essentials of this clinical system consists of three parts or units which should be interrelated and separable, dealing with medicine, surgery, and obstetrics (including gynaecology) respectively. In each of these subjects a Clinical Unit should include—

A Professor or Director who would devote the greater part of his time to teaching, treatment, and research, competent above everything else to teach, of sound scientific training, and possessing scientific imagination, who shall have—

(*a*) An adequate whole-time and part-time staff.
(*b*) The control of wards (50–100 beds).
(*c*) A proper and effective out-patient department.
(*d*) Ample laboratory accommodation for research and pathological work.
(*e*) Adequate scientific equipment for effective clinical teaching.
(*f*) A *post-mortem* service.

Such units should work along with and supplement the ordinary ward services in which practical teaching will still be carried on as before. But while the ordinary services are organized only for the immediate needs of the patient and the practical training of students, the Clinical Unit will, in addition, be especially equipped for scientific instruction and scientific research.

The purpose of the Clinical Unit system is therefore (*a*) to provide improved practical and systematic teaching for *all* the students in a Medical School in their clinical years of study (it is important that the advantages should not be restricted to selected students), and (*b*) to co-ordinate the Preliminary Science subjects with the Intermediate subjects, and both with the clinical work. In order to secure these desirable ends it is necessary that the terms of appointment and employment of Professors and their assistants should be appropriate. As the Final Report of the Royal Commission on University Education in London, 1913, stated:

"Experience has shown that the University cannot be certain of securing suitable conditions for the teachers when they are paid for by bodies over which it has no financial control. The first necessity is therefore that the University should provide its own teaching, by which we mean that it should appoint, pay, pension, and dismiss its teachers, and not leave these primary duties in the hands of independent corporations. With this control in its hands the University may be trusted—

"(i) to choose its staff for individual excellence from the widest possible field;
"(ii) to give them such remuneration, including superannuation, and such conditions of tenure as will free them from the pressure of material anxiety;
"(iii) to arrange that their teaching duties leave ample time for their own individual work;
"(iv) to arrange that the libraries, laboratories, and other means of assistance provided for them are such as to permit of advanced work and research; and
"(v) to give them a voice in the selection of their colleagues."

Whether the Head of the Unit be occupied in his professional duties whole-time or the major part of his time, whether he be allowed private practice or not, by what methods he integrates the intermediate subjects with clinical teaching—these and many other points are relatively matters of detail if he be paid an adequate salary and be put into a position in regard both to staff and equipment to carry out his functions effectually.

A complete and well organized Medical School should thoroughly co-ordinate the work of the Units themselves and associate them closely with that of the various and necessary special departments.

7. Further essentials for the successful development of the system described appear to be—

(1) That the training which the students receive in the preliminary scientific and intermediate subjects is satisfactory;
(2) That the hospital and school are effectually associated and suitably equipped; and that there is appropriate accommodation for the unit teaching, namely, wards, out-patient department and laboratories conveniently arranged in relation to each other;
(3) That appropriate and competent persons are available for the various posts in the unit.

[1] *Some Notes on Medical Education in England.* London: H.M. Stationery Office. 9d. net. [Cd. 9124.]

PRINCIPAL S. H. GAIGER of the Glasgow Veterinary College, in the course of the investigation of a very fatal form of dysentery in lambs, isolated an organism under conditions which make it probable that it is the cause of the disease. It is of the type of *B. coli*, and belongs to the group of which Friedländer's bacillus is the type. When inoculated subcutaneously it produces fatal enteritis in young rabbits. The disease attacks only lambs up to about 3 weeks' old, and an antiserum is being prepared which it is recommended should be used as soon after birth as possible.

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HELMINTHS IN CANCER.

In the recent communication by Fibiger of Copenhagen on the production of cancer of the stomach in rats fed on the larvae of the nematode *Spiroptera neoplastica*, on which we commented in our issue of May 15th, it was mentioned that the experimenter had in a few cases produced cancer of the rat's tongue. Further particulars regarding this are now available.[1] The study was conducted on 217 rats, including not only those of his laboratory strain but other strains of piebald rats and cross-breeds between piebald and the wild rat. The nematode had been transmitted to them on one or several occasions by feeding them on infected cockroaches or by causing them to ingest the larvae of the spiroptera. Of 132 rats which survived for 89 days or more, counting from the first or only ingestion, 64 were found to have glossitis and 2 definite carcinoma of the tongue. Of 85 rats which died after a period of from 90 to 180 days at least after ingestion, only 4 had glossitis, whilst in 3 cases cancer of the tongue was discovered.

The lower frequency of glossitis in rats of longer survival is considered to be due to the fact that the spiroptera in these rats disappeared from the tongue, and the glossitis had ceased before the fatal issue brought about by the lesions in the stomach or from some other affection. In a certain number of cases it was possible to study the beginning, progress, and disappearance of this glossitis. As a general rule it started a few days after the ingestion of the spiroptera, and in the great majority of cases it was spontaneously cured in two and a half to six months; cases of longer duration were rare. The glossitis attacked all parts of the tongue; but usually it was most marked at the base, where the thickened, swollen, and desquamating epithelium contained spiroptera. Microscopically, evidence of considerable inflammation was seen, with intense thickening and proliferation of the epithelium, which penetrated into the underlying tissue. The condition resembled that regularly found in lesions produced by spiroptera in the stomach. That these changes may progress so far as to constitute indubitable cancer of the tongue is shown by the figures quoted—five rats which had survived for 52 to 201 days after the first (in two cases the only) ingestion of the spiroptera. Fibiger says that the carcinoma of the tongue of his rats was absolutely similar, macroscopically and microscopically, to that found in the tongue of man, and especially the epithelioma of the papillary type. The microscope showed a destructive carcinoma of deep growth, invading the muscles of the tongue. In two cases there was permeation of the perineural lymphatics of the organ. In the first three rats that died the tongue showed, in addition to the carcinoma, glossitis and nematodes; in the other two carcinoma alone was found. In all these the gastric cul-de-sac was the seat of an intense spiropteral inflammation accompanied in four by carcinoma.

Thus the *Spiroptera neoplastica* (also called *Gongylonema neoplasticum*) may induce in rats a rapidly developing glossitis which, in the great majority of cases, diminishes as the nematodes disappear from the tongue, but in some cases it may be accompanied by carcinoma, which will persist after the disappearance of the nematodes and of the glossitis. The development of spiropteral carcinoma in the tongue of the rat thus offers a complete analogy with human lingual carcinoma, which also may accompany or follow desquamative glossitis (leucoplakia). Fibiger refers to the development of epithelioma of the lip in two cases of chronic trichinosis in man, and of epithelioma of the tongue in two other cases; in all of these the trichina was demonstrated in the immediate neighbourhood of the tumour.

It must not be assumed that spontaneous tumours of rats and mice are commonly caused by the ingestion of food containing the *Spiroptera neoplastica*, still less that cancers of higher animals and man are produced by a similar, or indeed by any, parasite. The observations are of laboratory interest in the study of the origin of malignant growths, and are instances of one particular form of irritation presiding at the inception of a neoplastic process. How this irritation brings about malignant development of the cells, what property it supplies to or excites in the cells, or what restraining influence it removes to allow of unceasing and destructive proliferation, can only be matters of speculation in view of our present knowledge.

Fourteen years ago Borrel published some observations on the relation between cysticercus and sarcoma development in the rat. Since then numerous communications have appeared showing that it is no uncommon thing to find primary sarcoma of the liver or other organs of the rat invaded by the cysticercus. These sarcomata are of different types; in many cases they formed metastases; and, indeed, transplantation experiments with the tumour tissue have succeeded. Eiken[2] states that in the *post-mortem* examinations of upwards of 2,500 rats in the Pathological Institute of Copenhagen University only a single animal showed cysticercus sarcoma. This was one of Fibiger's rats which had been fed on cockroaches infected with the *Spiroptera neoplastica*. Between the coils of intestine there was found a yellowish-white ovoid tumour (4 by 3 by 3 cm.), in the centre of which lay a *Cysticercus fasciolaris*, of typical appearance, measuring 5 cm. in length. Other cysticerci were noted about the liver unaccompanied by tumour formation. Microscopically the tumour was a round-cell sarcoma, with many polynucleated cells. No metastases were found. The wall of the cul-de-sac of the stomach was markedly thickened, and contained numerous spiropterae. Microscopic examination revealed a small typical epithelioma penetrating the submucous tissue.

It was calculated that the latter tumour was about three weeks old, and probably was considerably younger than the more advanced sarcoma. As the cysticercus present in the latter was in perfect preservation, it was concluded that the development of the sarcoma did not depend on the death and absorption of the parasite. What is of especial interest is the production by two different worms, parasitic in the same animal, of two different malignant tumours, and the fact that neither the parasitism of the cysticercus nor the consequent development of a sarcoma necessarily prevented development of a carcinoma subsequently produced by the spiroptera. Borrel considered that the power which such parasites had of bringing about tumour formation consisted in some unknown virus which they transmitted; Fibiger and others believed that the production of such tumours was due to toxic substances formed by the parasite.

[1] *Comptes rendus de la Société de Biologie*, vol. lxxxiii, No. 16.

[2] *Comptes rendus de la Société de Biologie*, vol. lxxxiii, No. 16.

With the latter view Eiken agrees. He regards the observation as showing that in the same animal two different neoplasms may be produced by the toxic secretions of two worms of different species, and that the secretions of one worm do not necessarily exclude the production of tumours by the toxic substances of another worm.

The following facts may serve to prevent hasty conclusions regarding the part played by the cysticercus. Of the reported cases of malignant disease of rats, sarcomata by far outnumber carcinomata; more than half the sarcomata occur in the liver, and of these hepatic sarcomata at least 90 per cent. contain the cysticercus. The cysticercus is a common parasite of the liver of rats. On the other hand, it is as frequently found in the livers of mice, and yet, out of the hundreds of thousands of malignant tumours of mice that have been met with, there is not a single case of hepatic sarcoma on record.

SMALL-POX: ITS TYPES AND PREVENTION.

COLONEL W. G. KING, C.I.E., I.M.S., has published, in the *Transactions* of the Society of Tropical Medicine and Hygiene,[1] an interesting epidemiological study of small-pox. He set himself the task of elucidating the types and strains of small-pox throughout the world, and to that end prepared a map upon which he entered the fatality rates of the disease as indicated by the most reliable statistics he could gather.

Colonel King classifies small-pox as follows: (1) The most virulent form occurs east of long. 40° E. and between lat. 40° N. and 6° S. The fatality ranges in the vaccinated from 30 to 60 per cent., and in the unvaccinated from 60 to 80 per cent. This may be termed "the Eastern Type." (2) West of long. 40° E. virulence is diminished and a strain is found capable on rare occasions of reverting to the primitive form. The general fatality in pre-vaccination days was from 18 to 25 per cent.; since that time, rarely more than 7 per cent. in vaccinated, but from 19.3 per cent. to 47 per cent. in unvaccinated persons. (3) In certain west European countries, mostly those which enforce vaccination, the fatality is sufficiently reduced to justify a subclassification and to permit one to speak of the "western substrain" of low fatality. (4) In South Africa there exists a second type of small-pox distinguishable both from the eastern type and its western strain, or substrain, by the mildness of the constitutional symptoms notwithstanding a considerable skin disturbance. The general fatality is not more than 4.3 per cent. From this source may have been evolved the strain of low virulence which has exhibited itself in races of European origin in America, Canada, and Australia.

Colonel King suggests that "if human beings in a state of low vitality—resulting, say, from ill feeding—be placed in overcrowded and filthy dwellings, and amongst them a strain of small-pox be introduced, in the course of transmission there will result an alteration of its characteristics in the direction of virulence if the strain at the time of introduction be mild, or it will simply retain its mild or virulent properties as introduced if the conditions to which it is submitted be those under which it has hitherto maintained its vitality." Attention is also directed to the fact that territories within the sphere of influence of a virulent type, but where use is made of vaccination, seem to suffer a lower fatality rate. Instances are Baghdad, contrasted with other districts inhabited by Turks and Arabs, and Algiers compared with Tunisia.

[1] Vol. xiii No. 6. pp. 95–116.

The paper deserves careful study. It is no doubt true that such a statistical comparison as Colonel King has made is open to criticism, inasmuch as the fatality rates, particularly those derived from hospital statistics, must be affected by factors other than the type of disease prevalent. In semi-civilized countries with few hospitals it is hardly possible to accept the hospital fatality rates as proper measures of the general severity of the disease. It is also perhaps questionable whether the author has carried his comparisons sufficiently far back to justify the inferences that either in the east or west the types have not varied. Thus Rhazes asserted that small-pox was less dangerous than the disease "Hasbah," which came to be translated "morbilli" and then "measles," perhaps being, as Haeser thought, scarlet fever—an opinion partly endorsed by Richter. Creighton's evidence of a change of type in small-pox before the days of either inoculation or vaccination is also too strong to be ignored.

But the practical lesson Colonel King seeks to instil is not weakened, is indeed strengthened by these criticisms. This generation has witnessed a remarkable change of type in two directions. Scarlet fever has declined in severity and fallen to a lowly place amongst the destructive diseases. Influenza has risen to the front rank of enemies of mankind, not merely as a vexatious but as a deadly foe. It is surely to risk the disillusionment which awaited the physicians of a hundred years ago when they proclaimed scarlet fever a conquered enemy if we now make similar assertions with regard to small-pox. In our opinion, Dr. McVail and Colonel King are fully justified in asserting that the rigorous enforcement of vaccination and revaccination of the whole of the population is the plain duty of a civilized state.

Several correspondents have asked for information about "alastrim," which was mentioned in the review, published on May 1st, of Dr. McVail's *Half a Century of Small-pox and Vaccination*. The term "alastrim" has been used to designate certain epidemics of an infectious eruptive disease which has been variously held to be different from, or to be a mild form of, small-pox. The word appears to have been used locally to designate a disease which was, and is, prevalent in Brazil; possibly it is derived from the Portuguese *alastrar*, which, according to Vieyra's dictionary, means "to strew" or "to cover all over." According to Dr. C. J. Martin,[2] Dr. Ribas, chief sanitary medical officer of the State of São Paulo, and subsequently, in 1911, Dr. Aragão gave an account of this disease.[3] During a few years 250,000 cases of "alastrim" occurred in five or six of the states of Brazil. Dr. Ribas came to the conclusion that the Brazilian disease was not small-pox, but identical with the South African milk-pox, or amaas, for the following reasons: "(1) Its low mortality (0.5 per cent.), whereas the usual mortality from small-pox under similar conditions is 30 to 60 per cent.; (2) the absence of secondary fever; (3) absence of a characteristic smell of small-pox; (4) non-occurrence of deep scars; and (5) the short duration of the immunity against vaccinia, it being possible to vaccinate the larger proportion of persons who have suffered from the disease within six months of their recovery." At the same meeting of the Epidemiological Section of the Royal Society of Medicine, Dr. W. G. Armstrong, senior medical officer of public health, New South Wales, described an outbreak of over 1,000 cases of small-pox occurring in Sydney in 1913, with one death (that of a parturient patient

[2] *Proceedings of the Royal Society of Medicine*, vol. viii, Part II, p. 33, 1914.

[3] *Memorias do Instituto Oswaldo Cruz.*

who died two and a half hours after delivery); he concluded that the epidemic was identical with the epidemic infectious disease variously known as "alastrim," "Spanish measles," "milk-pox," etc., which had prevailed during recent years in various parts of the Americas. Dr. Armstrong's account of the clinical characters of the epidemic agrees with the description of alastrim in Brazil as regards the low mortality, absence of secondary fever, and non-occurrence of deep scars, but in the Australian outbreak the typical variolous odour was noticed in the severer cases; the epidemic was too small for observation to be made of the duration of the subsequent immunity to vaccinia. The Sydney outbreak showed the same incubation period and symptomatology as small-pox, but, even in the confluent cases, after the disappearance of the eruption the patients had no fever and felt well; similar cases have occurred in subsequent years. Dr. Copeman in a communication to the Royal Society of Medicine,[1] pointed out that the Sydney outbreak resembled an epidemic which he had investigated at Cambridge some years ago, and which was first regarded as chicken-pox, but proved later to be small-pox of low infectivity and mild character. Nearly all those who took part in the discussion expressed the opinion that the Sydney "alastrim" was a mild form of true small-pox. Dr. Copeman has since investigated an outbreak of mild varioloid disease occurring in East Anglia, and expressed the opinion that it was closely related to "alastrim."

SIR CLIFFORD ALLBUTT.

THE Association of American Physicians has for the first time elected honorary members who live outside the United States, and the first honorary member elected was Sir Clifford Allbutt. Subsequently M. Roux, until recently director of the Pasteur Institute, Paris, Professor Heger of Brussels, and Professor Marchiafava of Rome, were also elected honorary members. Sir William Osler, who was an honorary member, was one of the founders of the association and was elected when still resident at Baltimore. So once more these two names—Osler and Allbutt—are associated in the possession of no ordinary distinction. The compliment thus paid to Sir Clifford Allbutt will give great pleasure to all members of the profession in this country, for by all he is regarded with respect and affection. Time does not change nor custom stale his infinite variety, and we are all looking forward to the presidential address which, on the evening of Tuesday, June 29th, he will give to the Annual Meeting of the British Medical Association in Cambridge.

INTERNATIONAL GOOD-FELLOWSHIP.

THERE are, as we have frequently ventured to say, great possibilities in the Fellowship of Medicine. The idea by which its founders were inspired was the promotion of closer relations between the members of the medical profession of the allied and friendly nations. It proposed to do this primarily by affording better opportunities to members of the profession within and beyond the seven seas to become personally acquainted, and to understand that the British profession was ready and anxious to welcome them as fellow-workers and personal friends. It was really as an after-thought—to meet the emergency at the end of 1918, when the armistice brought so many medical officers of the Dominion and United States forces to this country—that it established the post-graduate courses by which it is perhaps best known to the medical public. By its amalgamation with the Post-Graduate Medical Association an important step was taken towards placing graduate medical instruction in London on a more secure basis, and one which we greatly hope may presently be made permanent. It was natural that the Fellowship should be centred in London, and it at present enjoys the hospitality of the Royal Society of Medicine for its office work; but the amalgamated body is not a London institution, it seeks to encourage and organize post-graduate instruction in all parts of Great Britain. Recently, further opportunities for extension have been opened up, and there is an immediate prospect of the establishment of local centres of the Fellowship in the Dominions and in the United States. France, also, has shown a desire to co-operate, and the Fellowship has been invited to consider the formation of a branch in Paris for English-speaking students. We have already mentioned that the profession in Bath have arranged a course in hydrology for members of the profession in this and other countries; it begins on June 7th. We now learn that a course (in English) will be held also at Vichy, beginning on June 15th. It will be conducted by M. Monod-Walter, M.D.Paris, M.R.C.P.Lond., physician to the Vichy Thermal Hospital, and will include lectures on dyspepsia and dyspeptics (gastric pains, dilatation of the stomach and visceroptosis, aërophagia, dieting) and practical hydrology at the bathing establishment. Special terms for accommodation will be arranged. Additional information can be obtained from the Secretary to the Fellowship, 1, Wimpole Street, W.1. A programme of work in Paris will be published later.

THE AMERICAN HOSPITAL IN LONDON.

WE announced a short time ago that the London Committee of the American Hospital it is proposed to establish in London intended to entertain Dr. Charles W. Mayo of Rochester, Minnesota, at dinner in July. Dr. Charles Mayo is a member of the Medical Committee in America, along with his brother Dr. William Mayo; among other members are Dr. Crile, Dr. Ochsner, and Dr. Franklin Martin of Chicago, and Dr. Matas of New Orleans. The resolution by which the American Hospital was founded defined one of its most important aims to be "to act as a link in binding together the two nations for the advancement of medical science as affecting the welfare of humanity." The Medical Committee in this country will be anxious to do all in its power to further this most admirable object, and through the projected hospital and the Fellowship of Medicine to provide for American graduates the facilities in London and other parts of Great Britain which they used formerly to seek in Berlin or Vienna. As already announced, ex-President Taft is the president of the General Committee in America, and Mr. J. P. Morgan has recently become vice-president. As soon as the institution has become incorporated according to the laws of the State of New York, this committee will set to work to raise an endowment fund of several million dollars. It is not proposed at present to erect a new building in London, but the committee here believes that it will shortly be in a position to open a temporary building for the reception of patients and as a centre for American graduates visiting this country. The invitations to the dinner, which is to take place at Claridge's Hotel, Brook Street, London, on July 6th, are issued by the Earl of Reading (president of the committee in this country), Viscount Bryce (vice-president), the American Ambassador, and the Board of Governors of the hospital.

JAMESON.

ON May 22nd the body of Leander Starr Jameson found its last resting place in the Matopo Hills, close to the tomb of his friend Cecil Rhodes. Jameson was a very remarkable man. General Smuts, as Premier of South Africa, did justice to his great qualities in a telegram to the Rhodesian Administration on May 21st, when he described him as a great South African whose human

[1] *Proc. Roy. Soc. Med.*, vol. viii, Part II, p. 33, 1914.

qualities endeared him to all who knew him. "With the exception of Rhodes," General Smuts continued, "no man had a better right to be called the founder of Rhodesia. His work at the National Convention entitles him to the further distinction of being one of the makers of the new South Africa. In this solemn hour, when his dust is made for ever an integral part of British South Africa, we, of whatever race and speech, unite in remembering his great services and doing honour to his memory. On behalf of the Government and people of the Union, in whose public life he occupied so great a place, I express to you and the people of Rhodesia reverence for the dead and sympathy and fellow-feeling in our common loss." Jameson was a student of University College Hospital in the seventies. He graduated M.B. in 1875 and M.D. in 1877 in the University of London, and was resident medical officer of the hospital when an offer to join a practice in Kimberley appealed to his impecuniosity and love of adventure. It was in Kimberley that he met Cecil Rhodes, and it has been said that there were times when Jameson and his partners were the only people who had any ready money in Kimberley. However this may be, there is no doubt that Jameson became deeply involved in the speculation then so nearly allied to the politics of that part of South Africa. But he cared less for money than power; from 1891 to 1895 he was administrator of Rhodesia for the British South Africa Company. Devoted friend as he was of Rhodes it was he who "upset the apple cart" by the raid on the Transvaal in the last days of 1895. He was taken prisoner by the Boers and was tried in London and condemned, but shortly afterwards released. He served during the South African war in 1899–1900. He entered politics in 1900 as member for Kimberley in the Cape Legislative Assembly, and four years later was Premier of Cape Colony. The shifting sands of South African politics brought his political career there to an end in 1908, and he came to London, where he had always had one foot. He was sworn of the Privy Council in 1907, and created a baronet in 1911. During the later years of his life he was president of the British South Africa Company, but when he died in London on November 26th, 1917, he left no great fortune. The final funeral was an impressive ceremony. The body, which was accompanied by Sir Thomas Smartt, K.C.M.G., the leader of the Unionist Party in South Africa, was received at Bulawayo by a guard of honour. The service was attended by pioneers from all parts of Rhodesia, by the administrators of both provinces, by many members of the Legislative Council, and by representatives of the Chartered Company.

A UNIVERSITY QUARTER FOR LONDON.

THE offer of the Government, made through the Minister of Education, to provide a site of 11½ acres on the north of the British Museum for the head quarters of the University of London and for other university purposes, is a revival of a scheme first mooted at the beginning of 1912. The Royal Commission on University Education in London had published at the end of 1911 an interim report expressing the unanimous opinion that the University of London should be recognized as a great public institution, and that it "should have for its head quarters permanent buildings appropriate in design to its dignity and importance, adequate in extent, and specially constructed for its purposes, situated conveniently for the work it has to do, bearing its name, and under its own control." In February, 1912, it was announced that certain friends of the University had obtained an option on four plots of land lying immediately north of the British Museum. It was stated that the price asked for the site was £375,000, that this price might be reduced, and that promises of contributions amounting to £355,000 had been received. The proposal did not at that time meet with a cordial reception from the senate of the university, and nothing more was heard about it until Mr. Fisher's letter to the Chancellor of the University the other day. The Government is prepared to give the land as a site for the new head quarters of the university and the colleges and institutions connected with it—including King's College, now in very cramped quarters in the Strand—and is prepared also to secure the university from loss in respect of maintenance charges on the new university head quarters. The erection of the buildings would be left to public munificence. Mr. Fisher pointed out the advantages which might be expected to follow the concentration of the head quarters of the university and its two incorporated colleges on a single site in a quiet residential quarter close to the national library and museum, and yet capable of expansion in the future should need arise. The offer, will not, we feel sure, be lightly refused by the Senate; it is now under the consideration of a committee of that body. It is true that the financial position of the University of London is such that it has to live from hand to mouth, and that aspect of the question must no doubt have very full consideration, but if it reject the offer the Senate will incur a very serious responsibility. The University of London is now a lodger in the Imperial Institute; there is no university quarter in London, and university life suffers in consequence.

SIR JOHN BLAND-SUTTON.

IT was announced at the quarterly meeting last week of the Governors of the Middlesex Hospital that Sir John Bland-Sutton was retiring from the active staff. He became a student of the Middlesex Hospital in 1878, and was successively demonstrator and lecturer on anatomy; during this time he was also prosector to the Zoological Society, and old members of the Pathological Society will remember the numerous specimens he brought before it from the zoological laboratories during the presidency of Sir James Paget, who took many occasions of drawing the moral that the field of pathology was not limited to man. In these early days, too, he displayed an understanding of the influence which the theory of evolution must have on medicine and pathology, and in 1890 he published a book on *Evolution and Disease*. The Bland-Sutton Institute of Pathology which he established and endowed at the Middlesex Hospital was a practical application of the doctrine he has always maintained that the practice of medicine and surgery must rest on physiology and pathology, and can progress only as they advance. Readers of medical literature know his mastery of happy phrase and apt illustration, and, taking the last word literally, we may note that he is one of the few who have sustained the art of woodcutting in this time of its neglect. The pictures his papers contain prove that engraving on wood can present pathological appearances far better than the mechanical reproduction of photographs. He is a vice-president of the Royal College of Surgeons of England, and we had occasion only the other day to report that his brother surgeons had done him the distinguished honour of electing him the first president of the Association of Surgeons of Great Britain and Ireland.

CHAIR OF ANATOMY AT CAMBRIDGE.

PROFESSOR JAMES T. WILSON, at present incumbent of the Challis Chair of Anatomy in the University of Sydney, has been appointed Professor of Anatomy in the University of Cambridge, in succession to the late Professor Alexander Macalister, who died in September last. Professor Wilson was born in Dumfriesshire in 1861, and educated at Edinburgh, where he graduated M.B., C.M. in 1883. Like so many more of the leading British anatomists of this generation, he was demonstrator of anatomy in the University of Edinburgh under Sir William Turner. His contributions to science have been concerned chiefly with embryology, but also with comparative anatomy generally. He was elected a Fellow of the Royal Society in 1909. He has held the chair in Sydney since 1890.

PROFESSOR VAN BENEDEN OF LIÉGE.

A LIFE-SIZED bronze statue of Van Beneden, professor of zoology in the University of Liége, who died four years ago, was unveiled on May 24th. The statue stands at the entrance to the Zoological Institute where Van Beneden worked and taught for over thirty years. The ceremony was attended by a large number of his old colleagues, by representatives of other Belgian universities and scientific societies, and by delegates from British universities. Both King Albert and the Belgian Parliament were represented. The representatives of the British universities were Professor Sarolea (Edinburgh), Sir Leslie Mackenzie of the Local Government Board of Scotland (Aberdeen), and Professor Sir Thomas Oliver (Durham). Professor R. W. Hegner represented the Johns Hopkins University, Baltimore. When fully mustered the company marched in procession to the class-room where Van Beneden had taught and in which was gathered a large number of old and present students and his widow and relatives. The Rector was in the chair. Dr. Nolf, Professor of Pathology in the University, delivered a memorial address, during which a beautifully executed bronze mural tablet, pronounced to be an excellent likeness, was unveiled. Professor Gravis (botany), M. Lameere (President of the Belgian Royal Academy of Science), Professor Van der Stricht (Ghent), Professor Sarolea (Edinburgh), and Professor Ditmas, successor to the late professor, delivered addresses containing references to the epoch-making researches of the great embryologist and his work upon fecundation and cell reproduction. The speaker who drew the greatest applause was Van der Stricht, who, while pleading for the University of Ghent, insisted upon it retaining its French character as opposed to a purely Flemish institution. When he had finished his address the Rector, rising amidst the applause of the audience, kissed the distinguished Fleming upon both cheeks. Afterwards the audience proceeded to the front entrance, where the full-sized statue in bronze was unveiled. A luncheon, attended by several of the delegates and the Rector of the University, followed.

MORRISON OF PEKING.

DR. G. E. MORRISON of Peking died at Sidmouth on May 30th, after a long illness, which he faced with his accustomed courage. He was a patriot of the larger mould, and as *The Times*, whose correspondent in Peking he was for many years, has said, "his passion was that Great Britain might play her part in China's development." He was born in 1862 at Geelong, Victoria, where his father, a Scot, was principal of the college. While still a student at Melbourne he began his travels. His idea of travelling, whether in Australia or China, was to go on foot, for in this way he saw most of the country and of the people. While in charge of a small pioneer expedition to New Guinea he was wounded and left for dead with two spearheads in his body; for treatment he went to Professor Cheyne in Edinburgh and there graduated M.D., C.M. in 1887. He walked from Shanghai to Rangoon in 1894 and in the following year published his delightful book, *An Australian in China: Being the Narrative of a Quiet Journey across China to Burmah*. It was in that year that he became special correspondent to *The Times* in Peking, and proved himself one of the most accomplished journalists of the day. It was his intimate knowledge of China and the Chinese that gave him the great influence he had, and at one time or another he had visited every province in China except Tibet. In 1912 he resigned his connexion with *The Times* in order to accept the invitation of the first President of the new Chinese Republic to become his political adviser. He formed a very large Chinese library, and when his books were sold a short time ago sinologues gathered from all countries. When the list is made of members of the medical profession who have achieved great distinction in other spheres of activity, Morrison's name will not be omitted.

FUTURE PROVISION OF MEDICAL SERVICES IN WALES.

REPORT OF THE CONSULTATIVE COUNCIL.

THE Welsh Consultative Council is not a medical body, although it contains medical members; the chairman is Sir Edgar R. Jones, M.P., and among the members are representatives of nurses, friendly societies, county and rural district councils, Insurance Committees, and of labour organizations. The medical members are Professor D. Hepburn, C.M.G. (Cardiff), Dr. Rocyn-Jones (county M.O.H., Monmouthshire), Dr. Hugh Jones (Dolgelly), Dr. Ewen J. Maclean (Cardiff), Dr. E. Ll. Parry-Edwards (county medical officer, Carnarvonshire), and Dr. W. E. Thomas (chairman of the Glamorgan Panel Committee).

The first report of the Council was formally laid on the table of the House of Commons on May 19th, but has not yet been published. Its substance, however, can be stated. In the introduction to the scheme submitted by the Council the principle is laid down that the object to be sought is to maintain the people in good health, and that such maintenance should begin before birth and be actively promoted throughout life. It is laid down that a family doctor should be available for every household and that he should be kept in effective touch with the household through the scheme.

Health Visitors.

The first matter dealt with is the adequate supply of health visitors, but the new type of health visitors recommended is not to be taken as meaning merely extended service for those now employed by local authorities. The scheme of proposed duties is as follows:

Male Health Visitors.—To render (i) Nursing aid for men in early nerve cases threatening to become mental. (ii) Necessary help at clinics for children. (iii) Attendance at male venereal diseases clinics or ablution stations. (iv) Incidental assistance in general sanitary work and removal of infectious cases, if and when required. (v) Services under the Children's Act. (vi) Services under the Juvenile Employment Act. (vii) Services under the Mental Deficiency Act—when necessary.

Female Health Visitors.—(i) Domiciliary visits for (*a*) ante-natal work; (*b*) work arising out of notification of births; (*c*) visitation of schools, and following up school cases of defects; (*d*) tuberculosis cases from institute or visiting station; (*e*) mental deficiency cases which are under supervision or observation. (ii) Clinic work in connexion with (*a*) maternity (ante-natal and post-natal work) and infant welfare; (*b*) treatment of school children found defective; (*c*) tuberculosis cases at visiting station; (*d*) to notify the evidence of venereal diseases and give advice.

Special Health Visiting.—(i) Fever nursing—epidemic or fever nursing by way of domiciliary visits and help. (ii) District nursing. (iii) Whole-time nursing for special cases.

The minimum number of qualified female health visitors for carrying out enlarged duties in connexion with infant welfare work and school medical inspection should be 1 per 1,000 houses in the larger centres and 1 per 500 to 750 houses in the smaller towns and rural districts.

Dental Service.

The Council holds it of urgent and paramount importance that properly qualified dental treatment should be available for all, with priority for young children and expectant mothers. Attention is directed to the serious inadequacy of qualified dentists in Wales and to the mischief wrought by unqualified persons. A minimum provision of qualified dentists, if available, would probably be 1 to 4,000 of the population. The Council urges immediate action.

Medical Service.

Acting with the assistance of the various officers whose duties had thus been outlined, one doctor should, as a general rule, the report suggests, be available for 400 homes in urban communities and for 300 in rural. The unequal distribution of the population complicates the problem of specialists and consultants, which, it is said, should be approached on national rather than on purely local lines; a full report on the subject is to be prepared.

The Council holds that all health institutions, including voluntary hospitals, should form part of the future public services, but considers that until the general question of health administration in Wales has been fully considered the formulation of proposals as to the highest grade of institutions should be postponed. Subject to this, the

various institutions to be included in the national scheme would be:

(i) Central institutes for general medical and surgical purposes; local institutes (on a smaller scale) for the same purposes; subsidiary hospitals; various kinds and grades of clinics; provision for invalid cooking.
(ii) Asylums and mental deficiency homes, with suitable subsidiary institutions for cases showing early signs of mental trouble.
(iii) Fever, small-pox, plague, cholera, and dysentery hospitals; isolation hospitals with appropriate provision for dealing with contacts; seaport quarantine stations.
(iv) Tuberculosis sanatoriums and hospitals.
(v) Various kinds and grades of rest (or holiday) homes, convalescent homes, health centres, open-air schools, health colonies for children.
(vi) Institutions for the blind and deaf, epileptics, and cripples.

Motor Transport.

The success of the whole scheme for health visitors, home helps, midwives, registered nurses, doctors, dentists, and institutions will depend for efficient administration upon a large systematic motor transport service. Telephonic communication for all concerned is also insisted upon as highly necessary.

Application to Industrial and Rural Areas.

The Council gives reports from three of its committees who visited typical areas.

Industrial.

The Aberdare committee estimates the requirements for an industrial and urban area, in presenting the needs for this district, as follows:

The General Hospital at Aberdare, as the principal local centre, should comprise—

(*a*) 100 beds for general medical and surgical conditions.
(*b*) A maternity and child welfare department and clinic, affording 40 additional beds, with a proportion for pre-natal cases and isolation.
(*c*) A school clinic with a lien on, say, 15 further beds.
(*d*) A fully equipped radiological section, including apparatus for electrical treatment and massage.
(*e*) Various clinics—for example, dental, tuberculosis, venereal, pediatric, psychiatric, etc.
(*f*) A fully equipped out-patient department both for casualties and the usual departments.
(*g*) A separate block in close proximity containing 50 beds to which cases requiring after-care and supervision might go, thus relieving the primary beds.
(*h*) An essential requirement would be a medical institute and laboratory, including a library and facilities for dealing statistically with health records of the area.

At Mountain Ash, a similar centre on half scale would be required, omitting the medical institute and laboratory.

A Mixed Area.

East Carmarthenshire was taken as typical of both an industrial and rural area. The Council suggests that Swansea should, as at present, be regarded as the centre for a large and fully equipped institution, and that at Llanelly also there should be a central institute to serve as a hospital for the south-eastern portion of the area, with subsidiary hospitals at Ammanford and Pontyberem respectively. The establishment of a hospital at Ammanford subsidiary to that of Llanelly would depend largely on the construction of an arterial road. After mentioning that there should be a fever hospital for the whole area, the Council advises that provision should be made in the area for public baths, pithead baths, and douche baths in connexion with factories and works. It is held that open-air schools should be established in every district, not only for defective children but for normal children also.

A Rural Area.

Merionethshire is reported upon as the type of a purely rural area. The Committee is of opinion that such a county, with a scattered population of only 50,000, should have its needs met by the provision of central institutions in association with other areas and not for this county alone, and by the provision of local institutions to serve local needs. They advise that large hospitals or institutes be provided at three central places—for example, at Bangor, Wrexham, and some other place—to serve parts of Merionethshire, Montgomeryshire, and parts of mid-Wales.

Minister's Comment.

Dr. Addison has pointed out that the recommendations must be considered in relation to the whole scheme of health services to be submitted to Parliament for the different parts of the United Kingdom—or at any rate of Great Britain. This observation is necessary in view of the financial changes the scheme would involve, to whatever degree the aid of the general practitioner be sought—the employment of so many other persons being contemplated.

England and Wales.

TREATMENT OF TUBERCULOSIS IN LONDON.

At the meeting of the London Insurance Committee on May 27th a report on sanatorium benefit in 1919 was presented. The new cases placed under institutional treatment by the Committee numbered 3,839; of this total 1,930 were cases of ex-service men, in all of whom the tuberculosis was held by the Ministry of Pensions to be connected with war service. Of the remaining cases 921 were males and 988 females. The number of civilian male cases was the smallest for any year since sanatorium benefit came into operation in 1912, although included in the figures were a number of patients who were on active service during the war, but in whose cases no connexion had been established between the disease and army service. In 25.9 per cent. of the total cases the period of institutional treatment was from one to two months; in 24.2 per cent. from two to three months, and in 19.2 per cent. from three to four months. At the end of the year 2,276 cases were in institutions, and 84 were on the waiting list. The number of patients who received domiciliary treatment during 1919 (treatment by the insurance doctor, with or without extra nourishment) was 8,364, and those receiving dispensary treatment 190. The medical adviser reported that the average length of residence in sanatoriums had increased. Roughly, 50 per cent. of all male patients discharged themselves; the remainder were almost all discharged on the recommendation of the medical superintendents, the usual ground for the recommendation being the improbability of further improvement. It was found that 47 per cent. of the ex-service men, 43 per cent. of the civilian males, and 39 per cent. of the females were unfit for any work after discharge, and that the proportion fit for full work only represented 8, 15, and 8 per cent. respectively in the three categories. The balance were discharged as fit for light work, which in practice meant that patients were unfit to follow their usual occupations. The number of patients recommended for sanatorium treatment who were sent for a preliminary period of observation to three consumption hospitals had increased; a considerable proportion were found unsuited for sanatoriums and were recommended for domiciliary treatment.

BOARDING-OUT OF CHILDREN.

It appears from a circular issued by the Ministry of Health that in January, 1919, about 3,500, and in January, 1920, about 3,100 children more than 3 years old were living in Poor Law institutions. As it is necessary to reduce this number it has been decided that the boarding-out fee may now be fixed by the guardians instead of by the central authority, and that in certain circumstances the sending of a child to a foster-parent whose creed is different from that of the parents may be sanctioned. A list of certified schools and institutions which have spare accommodation for children is appended to the circular.

Scotland.

SMALL-POX IN SCOTLAND.

CASES of small-pox have continued to occur in Glasgow during the last fortnight. On May 30th there were 156 cases under treatment in hospital; 34 cases had been admitted during the four preceding days and 14 recovered patients discharged. Two deaths occurred at the end of last week—one male unvaccinated and one woman vaccinated in infancy. The cases appear to be most numerous in the Bridgeton and Parkhead districts, but are occurring in many other parts of the city. Precautions are being taken all over Scotland, and free vaccination is being offered in most districts. In Edinburgh twelve centres for vacciuation have been established; they are to be open from 6 to 9 every evening, and a special staff of doctors has been engaged to attend for a fee of a guinea an evening. Three cases have occurred in Dundee but no fresh cases are reported in Edinburgh.

OBSTRUCTION OF A DOCTOR'S CAR.

For negligently interrupting the passage of a motor car in which Dr. Young, of West Calder, and his assistant were being driven along the Edinburgh-Ayr road to an urgent case, a motor lorry driver has been fined £2 in Edinburgh Sheriff Court. Dr. Young said in his evidence that the driver of the car sounded his horn continually, but the driver of the motor lorry paid no attention, and kept his vehicle in the middle of the road. The obstruction continued for a distance of two miles until the doctor's car had reached its destination. The accused said that, having been made aware by a pedestrian that a car was trying to pass him, he allowed the doctor's car to pass at the first moment when he thought it safe to do so.

Ireland.

MEETING OF COUNTY WEXFORD PRACTITIONERS.

THE medical practitioners of county Wexford, at a recent meeting held at Enniscorthy, recorded their belief

that a settlement of the Irish medical question satisfactory to the profession and the public cannot be effected without legislation, which must provide for such radical medical reforms as will secure that the present cumbersome and ineffective administration is replaced by more up-to-date and uniform methods, both as regards preventive and curative medicine.

The meeting resolved that the inadequate salaries of Poor Law medical officers ought to be increased, with retrospective effect, and passed a number of detailed resolutions regarding increases in rates of salary and scales of fees for professional services. Among these were resolutions that fees for attendance on private patients should be increased by 50 per cent., and that the rate of payment for contract practice be increased by 25 per cent. A vote of thanks was passed to Drs. T. J. Kelly, C. R. Boyce, S. V. O'Connor, and James Ryan, M.P., for the able manner in which they put the case of the doctors in relation to the roads question before the Wexford County Council.

THE PROPOSED SANATORIUM AT CRAIGAVON, BELFAST.

The Down County Council has received from the Local Government Board a letter stating that the application for sanction to borrow £27,000 for the purchase of Craigavon as a sanatorium for consumptives has been refused. The reasons for this are stated as follows:

In the Board's view, the main issue raised in the inquiry turns on the conflict of public interest—on the one hand of the need of the County Down patients for tuberculosis treatment and on the other of the welfare of Belfast.

Seeing that the Belfast Corporation, as the local authority, have publicly, and on grounds which were not refuted, represented the scheme of the Down County Council as injurious to the development and progress of the County Borough, the Board can only come to the conclusion, though with some regret, that the proposition is not one to which they should afford facilities by consenting to the application for a loan.

THE ULSTER MEDICAL SOCIETY.

The annual meeting of the Ulster Medical Society was held on May 27th, when the president, Mr. Andrew Fullerton, C.B., C.M.G., F.R.C.S.I., was in the chair. The reports of the honorary secretary, treasurer, and librarian were presented, discussed, and adopted. A debit balance of £39 was shown, but otherwise the reports showed a session of great activity and much professional interest, upon which the office-bearers were congratulated. The following office-bearers were elected for the ensuing year:

President: Dr. Thomas Houston, Belfast.
Vice-Presidents: Dr. James Agnew, Lurgan; Dr. J. E. MacIlwaine, Belfast.
Honorary Treasurer: Dr. S. I. Tarkington, Belfast.
Honorary Librarian: Dr. W. L. Storey, Belfast.
Honorary Secretary: Dr. W. W. D. Thompson, Belfast.
Assistant Editing Secretary: Dr. Robert Marshall.
Council: Dr. C. G. Lowry, Mr. H. Stevenson, Mr. S. T. Irwin, Dr. Wm. Burns, Dr. V. G. L. Fielden, Dr. S. B. Boyd Campbell.

IN reply to a question on June 1st, when the House of Commons resumed after the Whitsun recess, Dr. Addison repeated his statement that the Government did not intend to take over voluntary hospitals, adding that within the limits of a reply he was unable to discuss the exact relation of voluntary institutions to the general scheme of health services, but hoped to be able to make a satisfactory statement before long.

Correspondence.

FUTURE PROVISION OF MEDICAL SERVICES.

The Primary Centres.

SIR,—To appreciate fully the scheme put forward by the Consultative Council[1] it is necessary to understand the conditions for which it is to be the remedy. Of these there are three main ones:

1. The doctors in their practice being isolated, and with but a limited resource in regard to methods, are not able to give their patients the benefit of those methods which the progress of medicine has provided. The equipment of the primary health centres will afford the doctor the opportunity of giving every patient these benefits.

2. Every thoughtful general practitioner has found on entering practice that his education had been wofully deficient, in that he was unable to recognize the complaints of the vast majority of his patients, and that he had to begin a re-education of himself. Until the teaching at the schools is improved, these primary health centres, where he will meet his more experienced brethren, will greatly help him in this respect.

3. It has been realized that there is a great lack of medical knowledge in regard to the early stages of disease. Research and education have been mainly concerned with the advanced stages of those diseases which are common amongst the people, and it was not understood how this lack of knowledge of the early stages could be made good. It has only lately been recognized that for this kind of research the general practitioner was the only individual who had the opportunity; but hitherto the means for undertaking this kind of work have been denied him. This state of affairs will be remedied by the establishment of the primary health centres.

The scheme is a bold one, designed to deal with an urgent need, and its magnitude may well cause doubts as to its wisdom. The more the condition of medicine is considered the greater will be found the necessity for some such drastic revolution. The one fear is that it may be entered upon too hastily, before the doctors who will carry it on are sufficiently experienced. If this be recognized, and a careful inquiry be made as to the best methods to be employed, and then a few centres started under doctors with some experience, a workable scheme will without doubt be discovered.

The cost of the scheme may at first sight appear too large, but if the various medical services are co-ordinated, and as far as possible carried on in one building, with one set of laboratories, the cost need not be so great.

The secondary health centres need not be established at first, for when the possibilities of the primary health centres are fully realized, the kind of secondary health centre needed will be better understood, or it may be found not to be required. I am confident that with the efficient carrying out of the primary health centre, the attitude towards hospitals and medical schools will be profoundly modified.

The Consultative Council are to be congratulated on having produced a very wise and practicable scheme, which, if properly carried out, will have a far-reaching and beneficial effect in the whole field of medical knowledge and practice.—I am, etc.,

J. MACKENZIE.

The Clinical Institute, St. Andrews, Fife,
May 29th.

Provision of Private Wards in Health Centres.

SIR,—The report of the Consultative Council proposes to meet the needs of the very large class of patients who are only able to afford a moderate inclusive fee for nursing home accommodation and expert medical treatment by the provision of private and self-supporting wards as part of the fabric of health centres. The essential services in the public and private wards would be identical.

[1] The Interim Report of the Consultative Council on Medical and Allied Services is published by H.M. Stationery Office, and may be purchased through any bookseller, price 1s. Messrs. Eyre and Spottiswoode, East Harding Street, Fetter Lane, E.C.4, will supply a copy post free on receipt of a postal order for 1s. 3d. (under the new postage rates.)

The proposal, occupying less than a dozen lines of the report, rather suggests a desire on the part of the Council to create a niche in a homogeneous ideal medical service for an awkward class of patient than a carefully considered plan to meet the urgent need there is in every large centre of population for the provision on an adequate and efficient scale for patients able to pay the full cost of maintenance (including nursing and all charges apart from medical fees) and a moderate fee for medical attendance. It is the inclusive cost that dominates the situation: cheap nursing-home accommodation alone is useless. In the report there is no suggestion as to how, or by whom, the medical charges are to be determined.

Provided that the patient can pay the economic cost of maintenance, nursing, etc., in a large private institution (which at present is about £6 6s. a week), the need can be met by the application of ordinary business principles, and the problem solved without resort to charitable or public funds. It is, however, essential that the medical profession in each large centre should take the initiative in establishing a hospital for paying patients on sound ethical lines, and should retain control over all matters affecting the admission of patients, the assessment of inclusive fees, and the personnel of the medical staff. That a hospital of this kind can be successfully established St. Chad's Hospital, Birmingham,[1] has demonstrated; upwards of 1,000 in-patients are now being treated there. What Birmingham has done other cities can equally well do and do quickly.

The proposals of the Consultative Council, admirable as they are in theory, involve such extensive reorganization and such vast expenditure of public funds, that much time must necessarily elapse before they can fully materialize. Any alternative which will satisfy quickly part of the requirements of their suggested complete medical service without interfering with the scheme as a whole, and without making any demands upon the public purse, should be welcomed on these grounds alone. Whether the provision of self-supporting wards as part of the hospital accommodation of secondary health centres would prove altogether satisfactory is open to doubt. Many difficulties in connexion with such a scheme present themselves to one's mind. Destructive criticism is, however, of little value unless a better alternative can be devised, and this, I firmly believe, would be the establishment in each large centre of private institutions run on the lines of St. Chad's, in which there is a combined desire on the part of the shareholders and the medical staff to bring the whole cost of expert medical treatment within the reach of people of moderate means without resort to charity or outside assistance of any kind.—I am, etc.,

WILLIAM BILLINGTON, M.S.Lond., F.R.C.S.

Birmingham, June 1st.

The Position of General Practitioners.

SIR,—Your sketch of this important and long-looked-for report is most welcome, and should encourage every medical and dental practitioner to invest the sixteen pence necessary in order to obtain the document and to give it the fullest detailed consideration. There are, however, three questions which seem to jump at once to the eye, and will prove probably to be fundamental.

1. The medical profession in 1910 decided by about 80 per cent. vote not to approve placing any domiciliary or institutional clinical service under the control of the county or county borough medical officer of health. Is it of a different opinion now?
2. What inducements or facilities are offered to the general practitioner to make the part-time State service one for preventive treatment, and not, as heretofore, one for curative treatment only?
3. Seeing that a general practitioner service is said to be the foundation on which to build an institutional service, how is it proposed to draw in those practitioners (50 per cent. of the profession) who disapprove of the State Insurance and Poor Law medical services, and who, consequently, will keep their patients away from any contact with the same?

For obvious reasons I sign myself—

May 31st. GENERAL PRACTITIONER.

CIVIL MOTOR AMBULANCE SERVICE.

SIR,—The report issued by the Consultative Council of the Ministry of Health embodies recommendations which will necessarily entail a considerable increase in the work of transport of the sick and injured in this country, and the Council draw special attention to the necessity for an ambulance service.

I am happy to say that the Joint Council of the British Red Cross Society and the Order of St. John has been able to anticipate this demand, and has during the past twelve months established over 300 motor ambulance stations throughout the country. That the need existed for an efficient ambulance service even before the establishment of the system of linked hospitals foreshadowed in the report, is shown by the fact that though a large proportion of the ambulances have been in service for only a few months, they have already been the means of transporting over 12,000 cases.

The administration of our ambulances has been delegated through county directors to local organizations or public health authorities as circumstances dictated, but central control of the service is maintained at head quarters, and we are thus in a position to develop and extend the scheme on such lines as may prove most desirable to meet the needs of a co-ordinated health service.—I am, etc.,

ARTHUR STANLEY, Chairman.

Joint Council British Red Cross and Order of St. John,
19, Berkeley Street, W. 1, May 29th.

THE GENERAL PRACTITIONER AND THE HEALTH SERVICES.

SIR,—I have read with surprise the letter under the above heading written by Mr. William Paterson, M.B., Ch.B.Edin. The tenor of his letter is decidedly unfortunate. Everything that has been done towards ameliorating the health of the community appears to be wrong, presumably because he does not agree with it. Is this attitude brought about by a subconscious fear that the "so-called health services" have proved of greater utility, and have done their work more thoroughly, than the average general practitioner, and that the ruling powers recognize this and their growing strength?

Perhaps it is symptomatic that a medical man should call a fellow practitioner—who, incidentally, has had an extended and specialized training—a scavenger. I cannot fathom why the whole-time medical man in the health service should be the butt for the enmity of a certain type of man in another branch of the profession. He is already called upon to bear more than his share of the kicks and considerably less than his share of the halfpence. (I judge upon the average life and earnings of a panel practitioner.) Even though they be scavengers, they are nevertheless hard-worked whole-time practitioners in the service of their country's government and working for that country's good. From humble beginnings they have raised the "so-called health services" into a living, complicated, and efficient organization. Can the same be said of the panel system, and if it can, why the present agitation for greater efficiency? Be it noted that this agitation has had no reference to the established public health services, but to the services rendered under the Insurance Act.

If the general practitioners had, as a body, worked with the health authorities, rather than against them, relations would have been more harmonious, proceedings more effective, and the profession would have gained much needed dignity and cohesion. Health work should undoubtedly be a part of a private practitioner's duty. It is easier for him to advise and to see that advice is followed than it is for the administrative official. How many of them put the easy theory into hard practice?

A letter such as that alluded to is pernicious. Particularly is it so when appearing in the official organ of the British Medical Association. The prominence given to the letter is suggestive of the Association's attitude towards the whole-time medical—or should I say scavenging?—services.

The cordial co-operation between private practitioners and whole-time public health service men is a consummation devoutly to be desired. It is for the majority to show the way, but the way is not that taken by the Honorary Secretary of the Willesden Branch.—I am, etc.,

OSCAR M. HOLDEN, M.D., D.P.H.,
Medical Officer of Health, County Borough of Dewsbury.

May 31st.

*** The universal custom of the press would, we should have thought, have made it unnecessary to state that the opinions expressed in a letter published in the BRITISH

[1] BRITISH MEDICAL JOURNAL, February 21st, 1920, p. 263.

MEDICAL JOURNAL are those of the writer, and do not in any way commit either the Association or the JOURNAL. The correspondence columns of the JOURNAL are intended, so far as space permits, to be a forum for discussion and free expression of individual opinions.

THE PERMEABILITY OF THE MENINGES TO ARSENIC.

SIR,—Intraspinal injections of atoxyl (Magalhéas, Congrès International de Médecin, Lisbon, 1906, Part II, p. 304) and neo-kharsivan (Marshall, BRITISH MEDICAL JOURNAL, May 22nd, 1920, p. 702) have been recommended in the treatment of sleeping sickness, presumably on the assumption that organic arsenic compounds do not permeate the meninges. I therefore wish to state that I found arsenic in the cerebro-spinal fluids of experimental donkeys after treatment with atoxyl (*Ann. Trop. Med. and Parasit.*, 1908, vol. ii, p. 327). Out of eight donkeys examined, seven contained arsenic in the cerebro-spinal fluid in approximately the same concentration as in the blood serum.—I am, etc.,

M. NIERENSTEIN, D.Sc., Ph.D.,
University of Bristol, May 29th. Lecturer in Biochemistry.

SMALL-POX IN SCOTLAND.

SIR,—In your issue of May 22nd, page 721, it is stated that over 4,000 persons accepted the offer of free vaccination in 1901. The correct number should have been over 400,000. I personally revaccinated over 2,000 at that time.

Practically one-half of the population of Glasgow was revaccinated, and in the second epidemic not a single case of small-pox occurred amongst the 400,000 who had been revaccinated. It was an experiment on a large scale.—I am, etc.,

Erdington, Birmingham, May 30th. R. ANDERSON, M.D.

MEMORIAL TO SIR VICTOR HORSLEY.

SIR,—I am very glad to be able to announce that the scheme for providing a memorial of Sir Victor Horsley has now been given a definite start The nucleus of a committee has been formed, with Sir Charles Ballance as chairman, Sir Frederick Mott and Dr. H. H. Tooth will act as honorary treasurers *pro tem.*, and Sir Arbuthnot Lane will act as joint secretary with myself. Lady Horsley has withdrawn any objection she had previously expressed, and it is hoped to found a lectureship bearing Sir Victor Horsley's name, probably under the auspices of the University of London, but all details have yet to be formulated by the much larger committee which is in course of formation. I need only add that the names of any persons associated with any branch of work in which Sir Victor Horsley was interested who wish to take part may be sent to me or Sir Arbuthnot Lane.

In view of the many appeals now before the medical profession and the public it is not intended to ask for any very large subscriptions, but it is hoped that the number of subscribers will be otherwise large enough to provide the sum required.—I am, etc.,

EDWARD J. DOMVILLE.
Symondsbury, Bridport, Dorset, May 28th.

Universities and Colleges.

UNIVERSITY OF CAMBRIDGE.

AT a congregation held on May 21st the following medical degrees were conferred:

M.B., B.CH.—F. J. Bennett, J. V. Bates, R. A. Woodhouse.

UNIVERSITY OF LONDON.

THE following candidates have been approved at the examinations indicated:

THIRD M.B., B.S.—*G. B. Dowling, †G. E. Elkington, §G. P. B. Huddy, ‡§M. Marcus, ‡§J. P. Ross (University Medal), *G. M. J. Slot, I. M. Abd-El-Said, B. W. Armstrong, E. M. Atkinson, Marjorie Back, C. F. Beyers, J. A. Birrell, W. R. Blore, T. G. D. Bonar, Ella M. Britten, W. W. K. Brown, E. E. Carter, D. G. Churcher, W. H. Coldwell, H. C. Cox, R. Coyte, Joyce E. Craggs, E. I. Davies, Sarah H. Davies, H. A. De Morgan, C. Y. Eccles, A. Eidinow, T. L. Ellis, A. Evans, J. Fanning, Kathleen Field, Alice M. Griffiths, E. F. Guy, H. L. Heimann, C. E. E. Herington, C. L. Hewer, N. H. Hill, G. O. Hume, D. Hunter, E. F. Kerby, G. E. Kidman, J. V. Landau, S. S. Lindsay, N. P. L. Lumb, H. M. C. Macaulay, P. G. McEvedy, S. F. Mahmood, Ida C. Mann, J. P. Padshah, Dorothy Pantin, W. W. Payne, N. A. M. Peterson, Norah D. Pinkerton, Beatrice D. Pullinger, A. L. H. Rackham, H. E. Reburn, Frances E. Rendel, Esther Rickards, H. C. Rook, T. C. Russell, E. J. Samuel, P. D. Scott, J. V. A. Simpson, J. B. Thackeray, J. A. van Heerden, A. S. Wakely, R. L. Walker, M. J. T. Wallis, L. H. W. Williams, F. E. S. Willis, Jane E. Wood, W. Yeoman.

Distinguished in * Medicine, † Pathology, ‡ Forensic, § Surgery.

UNIVERSITY OF ST. ANDREWS.

Honorary Degrees.

AMONG the honorary degrees to be conferred at the public graduation ceremony on July 2nd are the degree of LL.D. on Dr. Leon Fredericq, for nearly forty years Professor of Pathology in the University of Liége, Belgium; Mr. W. J. Matheson, president of the biological laboratory at Brooklyn, and scientific adviser in chemistry to the Board of Health for the city of New York, and Dr. Norman Walker, His Majesty's inspector of anatomy for Scotland and direct representative of the profession in Scotland on the General Medical Council.

ROYAL COLLEGE OF PHYSICIANS OF EDINBURGH.

A QUARTERLY MEETING of the Royal College of Physicians of Edinburgh was held on May 4th, Sir Robert Philip, President, in the chair.

Dr. Andrew Graham Ritchie was elected a Fellow, and Dr. George Sandison Brock, M.B.E., Dr. Chung Yik Wang, and Dr. Thomas Frederick Corkill were elected members.

The Lister Fellowship for Original Research was awarded to Dr. G. W. Marshall Findlay.

The subject of the essay for the next competition for the prize founded by the late Dr. John Parkin is "On the curative effects of carbonic acid gas or other forms of carbon in cholera, for different forms of fever and other diseases." Essays must be received not later than December 31st, 1920, by the Secretary of the College, from whom full particulars can be obtained. The prize is of the value of £100, and is open to competitors of all nations, but the essay must be written in English.

Medical News.

DR. J. G. ADAMI, C.B.E., F.R.S., Vice-Chancellor of the University of Liverpool, and lately Strathcona Professor of Pathology and Bacteriology in McGill University, Montreal, has been elected to an honorary Fellowship at Christ's College, Cambridge, of which he was formerly a scholar.

THE Minister of Health has appointed Mr. Llewelyn Williams, M.C., F.R.C.S., D.P.H., to be Medical Member of the Welsh Board of Health with the status of a Senior Medical Officer of the Ministry of Health. Dr. Meredith Richards, who has been acting temporarily as Medical Member of the Welsh Board of Health, has been appointed to the head quarters establishment of the Ministry of Health.

MR. H. LLOYD WILLIAMS, M.R.C.S., L.D.S., has been appointed a justice of the peace for the county of Middlesex.

DR. A. F. HURST will deliver the Croonian Lectures before the Royal College of Physicians this month. The first lecture will be given on June 10th at 5 p.m. The subject is the psychology of the special senses and their hysterical disorders.

AT a meeting of the Royal Sanitary Institute at Lincoln, on the evening of June 11th, a discussion on the development of maternity and child welfare work in a small county borough will be opened by Dr. J. C. Cole, M.O.H. Lincoln.

DR. WILLIAM M. PARSONS, of Manchester, New Hampshire, the oldest medical practitioner in New England, has celebrated his 94th birthday; during the day he attended as usual to patients coming to consult him.

DR. W. BRAMLEY TAYLOR, J.P., honorary librarian to the Society of Apothecaries of London, has received from the King of the Belgians the Médaille du Roi Albert for continuous services rendered to Belgian refugees in Weybridge during the five years of the war.

THE Bromley Division of the British Medical Association arranged a golf tournament for doctors living in the Division. The meeting was held at Langley Park Golf Club by kind permission of the committee on Thursday, May 27th. The competition was a handicap round against bogey. The result was: First, Dr. Soper (6), 1 down; second, Drs. Hawke (13) and Stilwell (12), 3 down. Drs. Tennyson Smith, Wynne Thomas, Randell M. Curtis, Umney, Clements, Ilott, Colyer, Blake, Henshaw, Bailey, Cogswell, Michael, Giddings, and Colonel Smith, R.A.M.C., also played.

AFTER a meeting of the Faculty of Medicine of the University of Brussels on May 22nd, the Vice-Chancellor publicly presented the Medal of Honour of the University to Lord Dawson, Sir Leslie Mackenzie, and Sir W. Smith, in recognition of their distinguished services to preventive medicine.

THE Florence Nightingale Medal was instituted by the International Red Cross Committee in Geneva in 1912 in memory of the work of Florence Nightingale, to be distributed annually to six trained nurses who, in the opinion of the committee, have rendered exceptional service in connexion with nursing. During the war no distribution was made, but shortly after the signing of peace, it was decided to award fifty of these medals, and all National Red Cross Societies were requested to submit recommendations for consideration by the Committee; forty-two medals have been awarded. The recipients are nine British nurses, including one each from Canada, New Zealand, and South Africa, eight nurses of France, six of the United States, five of Italy, three of Japan, two of Belgium, two of Czecho-Slovakia, one of Greece, and one of Rumania. The medal is also awarded to one Danish nurse who worked in France, and to two Austrian and two Hungarian nurses.

THE American and Canadian Section of the International Association of Medical Museums held its thirteenth annual meeting at Cornell University on April 1st. Professor O. Klotz of Pittsburg, who was in the chair, and Dr. Maude E. Abbott gave addresses on the pathological collections and the activities on behalf of the Medical Museum and the Museums Association of the late Sir William Osler. A resolution was adopted authorizing the council to take steps to raise a fund to bring into working order the Central Bureau for North America for the preservation of microscopic results of medical research, which some years ago it was resolved to establish. Two demonstrations were given from the Canadian National War Museum, one on facial injuries, by Major E. F. Risden of Toronto, and the other on the Canadian army medical arrangements at the front, by Major G. A. Campbell of Ottawa. Major F. B. Gurd of Montreal exhibited specimens showing infections of gunshot wounds by *B. aërogenes;* Professor James Ewing of Cornell showed a large series of tumours of bone, including some unusual forms, and Professor Klotz spoke on the teaching value of the small museum specimen. A number of papers on preservation of specimens were read, including one by Dr. Homer Swift of New York, on the preservation of stock cultures of bacteria. A meeting of the Association of Pathologists and Bacteriologists was held at the same time, and for the advantage of both an exhibition was arranged. Dr. W. M. L. Coplin of Philadelphia was elected president for the ensuing year.

Letters, Notes, and Answers.

AUTHORS desiring reprints of their articles published in the BRITISH MEDICAL JOURNAL are requested to communicate with the Office, 429, Strand, W.C.2, on receipt of proof.

AS, owing to printing difficulties, the JOURNAL must be sent to press earlier than hitherto, it is essential that communications intended for the current issue should be received by the first post on Tuesday, and lengthy documents on Monday.

IN order to avoid delay, it is particularly requested that ALL letters on the editorial business of the JOURNAL be addressed to the Editor at the Office of the JOURNAL.

THE postal address of the BRITISH MEDICAL ASSOCIATION and BRITISH MEDICAL JOURNAL is 429, Strand, London, W.C.2. The telegraphic addresses are:

1. EDITOR of the BRITISH MEDICAL JOURNAL, *Aitiology, Westrand, London;* telephone, 2631, Gerrard.
2. FINANCIAL SECRETARY AND BUSINESS MANAGER (Advertisements, etc.), *Articulate, Westrand, London;* telephone, 2630, Gerrard.
3. MEDICAL SECRETARY, *Medisecra, Westrand, London;* telephone, 2634, Gerrard. The address of the Irish Office of the British Medical Association is 16, South Frederick Street, Dublin (telegrams: *Bacillus, Dublin:* telephone, 4737, Dublin), and of the Scottish Office, 6, Rutland Square, Edinburgh (telegrams: *Associate, Edinburgh;* telephone, 4361, Central).

QUERIES AND ANSWERS.

INCOME TAX.

W. G. bought a new car (No. 1) in 1914 for £310 and sold it in 1917 for £250; in February, 1920, he bought another new car (No. 2) for £505. What is the proper allowance for the "cost of renewal" of the old car?

*** As the new car is no better than the original one we consider that our correspondent should be allowed £505 less £250, that is, £255 and not the £310 less £250, that is, £60—the amount lost on No. 1 which is the view apparently taken by the Revenue authorities. Logically that view seems to imply that a new set of tyres to replace old ones is not purely a revenue expense if they cost more than the original tyres cost, which is almost a *reductio ad absurdum*. But in the long run it may not make much difference; if depreciation is allowed to professional men using motor cars—as the Royal Commission on Income Tax recommended—our correspondent will be able to claim depreciation on £505 if he is now allowed only £60, but only on £310 if he is allowed £255, and even if this change in the law should not be effected the increased allowance now would operate to reduce the future allowance when No. 2 is replaced. We consider that our correspondent should have the allowance now, but it is worth while to take this view of the matter into account before he embarks on the trouble of an appeal against the practice of the Revenue authorities.

LETTERS, NOTES, ETC.

THE issue of *Evans' Analytical Notes*, the annual publication of which has been suspended since 1914, has been resumed. The account given by Messrs. Evans Sons, Lescher, and Webb of the analyses conducted in their laboratories contains much interesting pharmaceutical information. Copies may be obtained by medical practitioners on application to 56, Hanover Street, Liverpool.

REGISTRABLE FOREIGN DEGREES.

IN a note on the issue of the *Medical Register* for 1920, published in the JOURNAL of April 10th, it was inadvertently said that the degrees of nineteen foreign universities in Europe and eight in the United States of America were registrable in this country. It ought to have been said that the degrees of such universities, if obtained before June 25th, 1886, were registrable as additional titles by practitioners previously registered. The Medical Act of 1886 provided that an Order in Council might be issued applying Part II of the Medical Act to any foreign country which affords to the registered medical practitioners of the United Kingdom reciprocal privileges of practising. Under this provision, the Act was extended to Italy in 1901, and to Japan in 1905. Belgian degrees were made registrable in the Foreign List in 1915 under the special circumstances of that time. Foreign degrees or diplomas entitling a foreign practitioner to have his name entered on the Foreign List must be those approved by the General Medical Council. The number of names on the Foreign List of the *Medical Register* for 1920 was 165.

AN OPPORTUNITY FOR INVALIDS.

DR. H. F. LECHMERE TAYLOR (Secretary and Superintendent of the Edinburgh Medical Missionary Society) writes: To those cut off by bodily weakness from the wider activities of life the Invalids Auxiliary of this society offers an interesting opening. The auxiliary was founded some fifty years ago, and has as its aim to give invalids an opportunity of helping fellow sufferers in other lands. A sale is held about the end of the year, in Edinburgh, of work contributed by members of the auxiliary, the proceeds being apportioned amongst various medical missions. Contributors are kept informed as to the destination of their gifts, and an endeavour is made to establish a living link of sympathy between those who give and those who get. To many invalids in past years the auxiliary has brought an added interest in life and a congenial means of useful service. The committee will welcome new contributors, and would suggest to doctors and nurses who have the care of invalids to bring this form of activity to the notice of their patients, who would benefit by being interested in helping other sufferers. Further particulars will gladly be furnished by Miss Clark, 16, Coates Gardens, Edinburgh, or Miss Annie Walker, Assistant Secretary, Edinburgh Medical Missionary Society, 56, George Square, Edinburgh.

VACANCIES.

NOTIFICATIONS of offices vacant in universities, medical colleges, and of vacant resident and other appointments at hospitals, will be found at pages 35, 38, 39, 40, 41, 42, and 43 of our advertisement columns, and advertisements as to partnerships, assistantships, and locum tenencies at pages 36, 37, and 38.

THE following appointments of certifying factory surgeons are vacant: Braintree (Essex), Johnstone (Renfrew).

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Six lines and under	0	7	6
Each additional line...	0	1	3
Whole single column	6	0	0
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An average line contains six words.

All remittances by Post Office Orders must be made payable to the British Medical Association at the General Post Office, London. No responsibility will be accepted for any such remittance not so safeguarded.

Advertisements should be delivered, addressed to the Manager, 429, Strand, London, not later than the first post on Tuesday morning preceding publication, and, if not paid for at the time, should be accompanied by a reference.

NOTE.—It is against the rules of the Post Office to receive *poste restante* letters addressed either in initials or numbers.